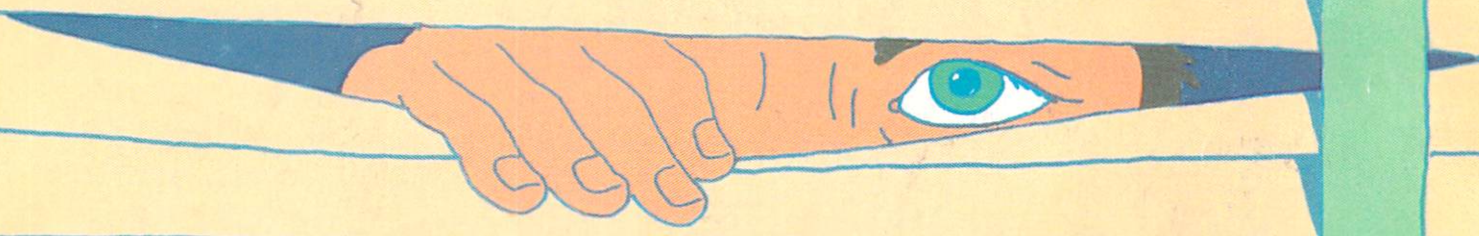
AMIGA WORLD

May 1988
U.S.A. $3.95
Canada $4.50
UK £2.50
An IDGC/I
Publication

TAKE A LOOK AT WHAT'S NEW!

Pre-Release Preview: OS 1.3



SOFTWARE SIZZLERS!

- Professional Page
- Animate 3-D
- Plus! Expanded Reviews

CHWAST

05
0 74470 65948

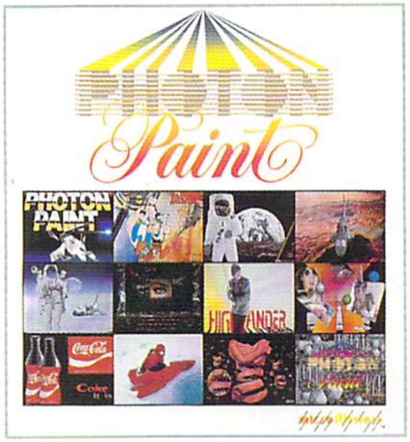
PHOTON Paint

EXPANDING YOUR PAINT CAPABILITIES AS NEVER BEFORE

PHOTON PAINT IS A POWERFUL LO- AND HI-RESOLUTION HOLD AND MODIFY (HAM) PAINT PROGRAM, WITH OVERSCAN (NTSC /PAL) AND SPECIAL EFFECTS FOR THE AMIGA COMPUTER!

Now many of the features and techniques previously only available in separate Amiga paint programs have been combined and expanded in PHOTON PAINT! These include features that were limited to either a 32 color paint program, or a HAM paint program. Yet it doesn't stop there! PHOTON PAINT expands your paint capabilities as never before with these features:

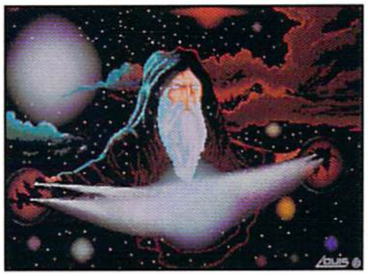
• 64 color palette with 4,096 color alterations • State of the art Surface Mapping • Exceptionally sophisticated brush operations • Real-time operation of drawing tools • Paint in exactly the color you choose in HAM mode • Allow HAM to modify colors • Two types of fill functions • All popular brush operations • Full blend mode • Total menu movability with brush and color palette menu size reduction option • Light source specification, normal, intense or dithered • Unique magnification window with variable pixel sizing • Transparent or opaque background colors • Palette color spreads with both (RGB) AND (HSV) functions • Compatible with most third party art and animation systems, including Photon Video.

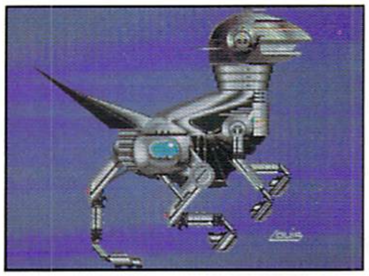


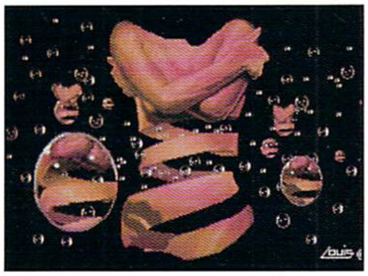
EXPAND YOUR CREATIVITY TO A NEW DIMENSION, PICK UP PHOTON PAINT TODAY!



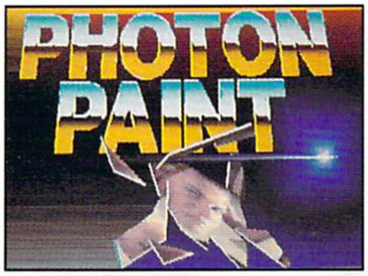














microillusions™
17408 Chatsworth St., Granada Hills, CA 91344
Inside CA 818/360-3715 • Outside CA 800/522-2041 • FAX 818/360-1464

12-112

New! Version 3.0 includes overscan, half-brite support and more!



DIGI VIEW

DELIVERS ULTIMATE GRAPHICS POWER

Bring the world into your Amiga with Digi-View, the 4096 color video digitizer. In seconds you can capture any photograph or object your video camera can see in full color and with clarity never before available on a home computer. Digi-View's advanced features include:

- Dithering routines give up to 100,000 apparent colors on screen
- NewTek's exclusive Enhanced Hold-and-Modify mode allows for exceptionally detailed images
- Digitize images in any number of colors from 2 to 4096
- Print, animate, transmit, store, or manipulate images with available IFF compatible programs
- Digitize in all Amiga resolution modes (320x200, 320x400, 640x200, 640x400)

"Digi-View sets new standards for graphics hardware"-*InfoWorld*

Digi-View is available now at your local Amiga dealer or call:
1-800-843-8934

ONLY $199.95





NEWTEK
INCORPORATED

All photos actual unretouched Digi-View pictures shot directly off the 1080 Amiga monitor.

Circle 102 on Reader Service card.

Amiga's Monthly Disk Magazine

AMnews™ is the world's most advanced publication of its type, featuring over 300 pages of articles, graphics, music, animation, and a *complete* user interface to make reading easy! Each issue comes on three disks packed full with articles ranging from programming language tutorials, in-depth product reviews, regular columns, special features, programs, and unique departments.

AMnews™ is a *must have* item for every Amiga owner.
We pride ourselves in covering every facet of the Amiga computer, and even expanding into the area of general computer science. Articles are written by industry experts who are intimately familiar with the Amiga in their specific field.
But don't take our word for it, read what some of the thousands of AMnews readers have already said about our past 5 issues.

"I couldn't turn off my Amiga once I started reading it!" — Dennis H., Dearborn, MI
"The articles span the spectrum from the beginners, myself, to the knowledgeable." — Donald M., New York, N.Y.
". . . the new Amiga kid on the block . . . the screens are pretty and the articles are entertaining. It looks like its got potential" — Info Magazine

3 Full Disks

Discover the World inside your Amiga!

AMnews™

To find a dealer nearest you, call one of these people:

CANADA
- Ingram Software Ltd. — (800) 387-3671
- Phase 4 – (800) 661-8358

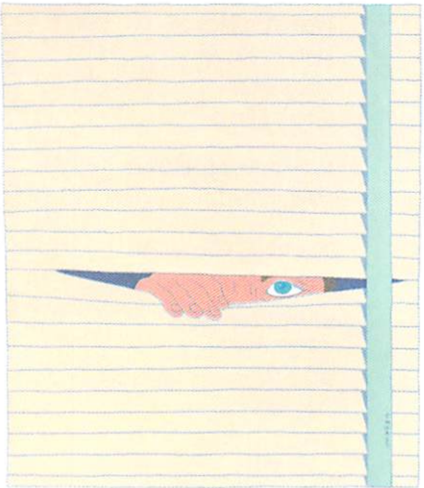
UNITED STATES
- Electronics Boutiques — all locations
- Connecticut Software Distributors — (800)621-2667
- Southern Technologies — (800) 647-7741
- The Software Company — (212) 608-9153
- B. Dalton / Software etc. — all locations
- Waldensoftware Stores — all locations
- Comp'rehend — (714) 581-7677

AMnews Corp., 2055 Peel St., Suite 1055, Montréal, Québec, Canada H3A 1V4

Circle 12 on Reader Service card.

VOLUME 4, NUMBER 5 MAY 1988

CONTENTS



It may seem (from our cover) we're being very secretive this month, but we do aim to let you in on a number of new things we've been eyeballing around here lately. Top of the list is a special pre-release preview of the new version of the Amiga Operating System—1.3—and how it will improve the performance of your Amiga. Also, we're examining a slew of very exciting new programs, including feature reviews of Professional Page and Animate 3-D, and a special expanded version of our regular review section. So go ahead—take a peek inside!

FEATURES

ARTICLES

COLUMNS

DEPARTMENTS

COVER ILLUSTRATION BY SEYMOUR CHWAST

Publisher
Stephen Twombly

Editor-In-Chief
Guy Wright

Managing Editor
Shawn Laflamme

Technical Editor
Robert M. Ryan

Senior Editor
Linda J. Barrett

Senior Editor
Dan Sullivan

Review Editor
Barbara Gefvert

Contributing Editors
Bill Catchings,
Peggy Herrington,
David T. McClellan,
Mark L. Van Name,
Lou Wallace

Art Director
Rosslyn A. Frick

Assistant Art Director
Howard G. Happ

Designers
Anne Dillon
Roger Goode

Production/Advertising Supervisor
Ruth Benedict

Sales Manager
Kenneth Blakeman

Sales Representative
Michael McGoldrick

Advertising Coordinator/
Pull Down Menu
Heather Paquette
1-800-441-4403

West Coast Sales
Giorgio Saluti, manager
1-415-328-3470
Danna Carney
Pull Down Menu/Sales Assistant
3350 W. Bayshore Road, Suite 201
Palo Alto, CA 94303

Secretary
Sandy Kierstead

Marketing Manager
Wendie Haines

Marketing Coordinator
Laura Livingston

Business Manager
Barbara Harris

Customer Service Representative
Lisa LaFleur

President/CEO
Michael S. Perlis

Vice-President/General Manager
Roger Murphy

Group Publisher
Consumer/Home Magazines
Stephen Twombly

Director of Corporate Production
Dennis Christensen

Typesetting Manager
Linda P. Canale

Typographer
Doreen Means

Manufacturing Manager
Susan Gross

Director of Circulation
Frank S. Smith

Circulation Manager
Bonnie Welsh

Direct Marketing Manager
Paul Ruess

Newsstand Sales
Linda Ruth

Direct Sales Manager
Elizabeth R. Kehn
800-343-0728

Director of Credit Sales & Collections
William M. Boyer

AmigaWorld (ISSN 0883-2390) is an independent journal not connected with Commodore Business Machines, Inc. *AmigaWorld* is published monthly by IDG Communications/Peterborough, Inc., 80 Elm St., Peterborough, NH 03458. U.S. subscription rate is $24.97, one year. Canada $47.97 (Canadian funds), one year only. Mexico $29.97 (U.S. funds drawn on U.S. bank), one year only. Foreign $44.97 (U.S. funds drawn on U.S. bank), one year only. Foreign Airmail, please inquire. Second class postage paid at Peterborough, NH, and at additional mailing offices. Phone: 603-924-9471. Entire contents copyright 1988 by IDG Communications/Peterborough, Inc. No part of this publication may be printed or otherwise reproduced without written permission from the publisher. **Postmaster**: Send address changes to *AmigaWorld*, Subscription Services, PO Box 868, Farmingdale, NY 11735. Nationally distributed by International Circulation Distributors. *AmigaWorld* makes every effort to assure the accuracy of articles, listings and circuits published in the magazine. *AmigaWorld* assumes no responsibility for damages due to errors or omissions.



BUY 2, PICK 1 FREE!

We're sure that amongst all these choices, there's one that you'd like to pick – for free. So, go ahead – exercise your free choice by visiting your nearest retailer. Buy any two of these best-selling Electronic Arts products between April 1, 1988 and June 30, 1988 – and pick a third one for free!

To redeem your free software, simply fill out either your retailer's coupon or the coupon in this ad, and mail it with proofs of purchase (see requirements on coupon) along with $3 per free product for shipping and handling (U.S. Funds). If you can't find a participating retailer, order direct by calling 800-245-4525 throughout the U.S. and Canada. Just tell us which products you want to buy, and what you want for free. Have your Visa/MC numbers ready.

HERE ARE YOUR CHOICES

- Amnesia
- Arcticfox
- The Bard's Tale
- The Bard's Tale II
- Chuck Yeager's AFT
- Deathlord
- Demon Stalkers
- Dragon's Lair
- Earl Weaver Baseball
- EOS: Earth Orbit Stations
- Get Organized
- GrandSlam Bridge
- Instant Music
- Instant Pages
- IntelliType
- Legacy of the Ancients
- Marble Madness
- Patton vs. Rommel
- PHM Pegasus
- Return to Atlantis
- Skate or Die
- Skyfox II
- Starflight
- Strike Fleet
- World Tour Golf
- B/Graph
- The Consultant
- DEGAS Elite
- DiskTools Plus
- Homepak
- IS Talk
- Outrageous Pages
- PaperClip Publisher
- PaperClip with Spellpak
- PaperClip III
- Thunder!
- Timelink

Product availability varies by computer format.
Ask your retailer or call (415) 572-2787 for details.

Circle 2 on Reader Service card.

PICK ONE.

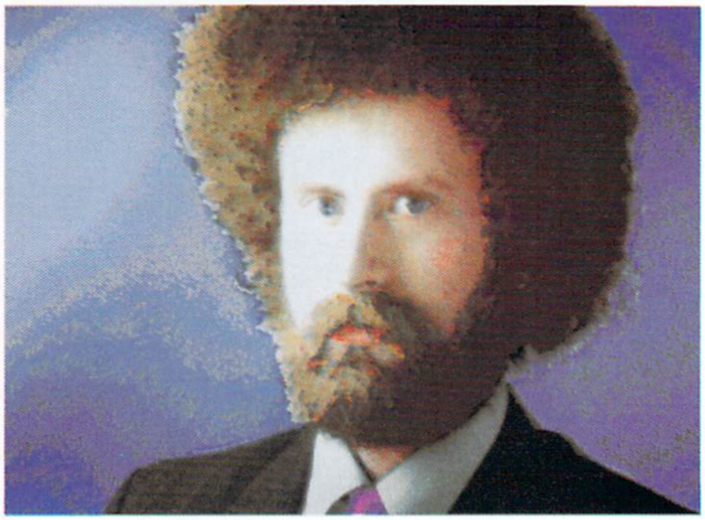


STARFLIGHT
CHUCK YEAGER'S
Advanced Flight Trainer
EARL WEAVER
Baseball
SPORTS LEGENDS
THE DESTINY KNIGHT
EOS
Earth Orbit Stations
DEATHLORD
B/GRAPH
HomePak
DELUXE
MUSIC
CONSTRUCTION SET
The Consultant
ELECTRONIC ARTS

ZEITGEIST

A change of season and

a new operating system.



WELL, WE SHOULD all be ready for spring about now. Digging out from the last of the snow (although here in New Hampshire we should be getting another storm or two).

During the winter months it is easy to find time to sit around playing. . . er, uh, working with the Amiga. Perhaps learning a bit about programming. Getting a few things organized on a database. But now that the weather is changing (or has already changed, depending on where you live), there are things to do outside, vacations to take, cabin fever to overcome.

It is well known in the computer magazine business that sales of software, hardware and (gulp!) magazines drop off in the spring and summer because people are doing things outdoors, and we all know how much of a pain it is to drag a computer out by the pool. (Won't it be nice when Commodore comes out with a lap-top Amiga?)

Then again, there will be those rainy days, lazy weekends and warm evenings when the idea of spending some time at the keyboard will be more appealing than taking out the garbage or painting the back porch. On those occasions, you might want to get out the Amiga Programmer's Reference Guide and C compiler to do a bit of hard-core beeping, or maybe Amiga Basic is more your style. I personally think BASIC is the best entertainment ever invented. But if you lean more toward using software developed by others, then this issue will be a valuable one. Our lead story about 1.3 is of interest to anyone who owns an Amiga, and the rest of the issue is devoted to reviewing some of the hottest (and not so hottest) software and hardware released in the past few months.

When I asked Bob Ryan, our technical editor, about 1.3, he said it was "evolutionary rather than revolutionary." Commodore cleaned up a few internal things, added more printer drivers, speeded up the I/O and. . .well, you can read the article yourself. They couldn't change things too radically, because as more and more software and hardware is developed for a computer, the more "locked in" the operating system gets. Change the wrong things and some software won't work any more.

Ideally, the Amiga operating system is generic enough so that all sorts of changes can be made without effecting third-party software or hardware. If every developer stuck to the "officially sanctioned format" there would be no problems. But there are developers out there who don't like the officially sanctioned format or don't understand it or can't do what they want if they stick to it. Sometimes things come up that the original Amiga designers couldn't have anticipated and the developers can't follow the format.

All developers aren't rogues, perpetually bucking the system. A majority of developers do stay within the lines. It is to their advantage to make their products "universal." That way more people can buy and use their products. It is also to their advantage to stick to as many "standards" (if there are such things in the computer business) as they can, because these days people are integrating packages that you couldn't integrate a few years ago (for example, digitized images and text stored in a database for later use in a desktop-publishing package, or paint program pictures used in a 3-D animation package for video titling).

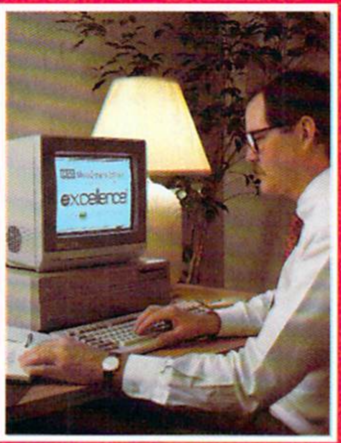
There will always be a few developers who ignore the formats and do things their own way. It hurts, and helps, the whole Amiga community. Every new operating system change or new Amiga that Commodore comes out with is certain not to run everything. (If your favorite program won't run under 1.3, it isn't Commodore's fault.) But if there weren't a few independent thinkers out there working on new and different things, then the Amiga wouldn't be the machine that it is now.

If you design a standard way of doing things, then you have a great deal of flexibility and interchangeability, but sooner or later, especially in the computer field, those standards end up as barriers to new ideas. Ah, well.

Have a good spring.

Guy Wright

Upgrade from Perfect to Excellence!



Micro-Systems Software is committed to a higher standard of excellence. And we're ready to prove it! Our newest Amiga product is a full-featured word processor that exemplifies our commitment to the Amiga. And to you. We have appropriately named it excellence! for obvious reasons. First of all, users of our popular word processor Scribble! told us about the features they wanted in a full-featured word processor. So we compiled their suggestions and designed excellence!, a program that sets new standards for word processing. And more importantly, excellence! has been developed specifically for the Amiga, on the Amiga. It takes advantage of the user-friendly Amiga interface and is designed to be intuitive in a way no other word processor can match. An important point: several companies, new to the Amiga market, want you to think their track record with other computer systems makes them instant experts with your Amiga. That just isn't so. Micro-Systems Software is one of the pioneer developers of productivity software exclusively for the Amiga! *We know your Amiga inside out.* So, features you once thought to be luxuries, you can now consider basics. Excellence! has all the powerful features required of a modern word processor, in a package sophisticated enough to use in desktop publishing.

There are always minor differences between programs designed for the same application. *Before* you make your choice, consider these major differences between excellence! and several well-known word processing programs! Excellence! processes words perfectly and does it faster than any other WYSIWYG word processing program available, giving the text-only programs a race for their money! (Not all programs claiming to be WYSIWYG really are. Excellence! shows you *everything,* including super- and sub-scripts, headers, footers, footnotes, colors, and graphics!) Excellence! has all of the standard features too, including: mail merge, full clipboard support, full text styling, multiple methods of movement within documents, search and replace, and printer control! Excellence! has a dramatic collection of features that place it at the forefront of a new generation of full-featured word processsors. Its innovations include: full color support of text, inclusion of IFF graphic images, spelling check as you type, basic math capabilities within documents, multiple column support, proportional font support, Index generator, Table of Contents generator, integrated Thesaurus, integrated Grammatical and Style checker, and PostScript output!

Features	excellence!	Word Perfect v4.1	Viza Write Desktop	Pro Write	Kind Words	Text Craft Plus
WYSIWYG (What You See Is What You Get)	✓	Partial	✓	✓	Partial	✓
Grammatical & Style Checker	✓					
PostScript Output	✓					
Include Pictures With Text	✓		Limited	✓	✓	
Fully Clipboard Compatible	✓		✓	✓	✓	✓
Multiple Proportional Fonts	✓	Not on screen	✓	✓		
Color Support	✓			✓		
Spelling Check As You Type	✓					
Math	✓	✓				
Multiple Columns	✓	✓				
Index Generator	✓	✓				
Table of Content Generator	✓	✓				
Thesaurus	✓	✓				
Limited Outliner		✓				
Mail Merge	✓	✓	✓		✓	✓

Excellence! is the perfect word processor for every need. From letters to newsletters; from the annual report to scientific research articles; from book reports to the book itself. If your writing aspires to excellence, you need a program to match!





MSS
Micro-Systems Software
Committed to excellence.

12798 West Forest Hill Boulevard
West Palm Beach, Florida 33414

Inquiries dial
1-(800) 327-8724
in Florida: (305) 790-0770

Dealers and Distributors
call Brown-Wagh, 1-(800) 451-0900
in California: (408) 395-3838

REPARTEE

Comments, complaints and concerns from AmigaWorld *readers.*

Fat Agnus On The Loose

I WAS VERY disappointed when my 4-week-old Amiga 500 powered down during a demonstration at an Amiga club meeting. When I tried to boot the 500, nothing would appear on the screen and the power light would flash on and off 11 times, then repeat.

An authorized service center tried twice, with two different boards, to repair my system. Both of the boards failed in exactly the same way. The service center gave up and returned my system. I then sent it to the dealer, a mail-order house, in return for a brand new system. Alas, this system had the same problem. Four boards in a row!

Frustrated, I then called Commodore Customer Relations. The person I spoke with was unaware of any hardware problems with the 500 and even denied the possibility that one could exist without him knowing about it. He offered no help in getting my system fixed. And he called buying a system from a mail-order house "your first mistake." I was shocked to hear a Commodore representative blaming my problem on the mail-order industry.

A friend discussed my hardware failure with another mail-order house. They said the problem was caused by the Fat Agnus chip not being seated properly. The simple solution was to reseat the Fat Agnus chip in its chip carrier.

If I had four out of four boards with this problem, I can't believe that Commodore is totally unaware of it. I was also very disappointed with the fact that Commodore (or at least one of its representatives) felt that its responsibility to me ended with the purchase.

Fred Kuhlman
Kokomo, IN

Choosing A Monitor

I RECENTLY PURCHASED an Amiga 500 and I am very happy with it. One big decision I had to make was which monitor to buy. I think the Amiga 1080 is a piece of junk, so I began to research my options and found the Sony 1310 and 1311 RGB analog and digital monitors that give you the color quality you can expect from a Trinitron. To anyone who is thinking of buying an Amiga, seriously consider the Sonys. They're only $50–$100 more and well worth it.

David Klingensmith
Austin, TX

Makin' Music

I HAVE A challenge for the developers of Amiga music software. What is there that is fun and easy for the non-musician, yet useful to the professional? What can I use to express my creativity, without having to learn all the fundamentals of music? Is there a music program I can enjoy a half hour after loading it? Instant Music was a start, but not many competitors have appeared. There are a lot of great programs available for those who are, or want to be, professional musicians. But where are the programs for people like me, who don't know a treble cleff from a quarter note, or a flat from a sharp, but who want to express themselves musically?

Richard Foy
Redondo Beach, CA

Stay tuned (pun intended) for our June issue, in which we will turn our attention to the Amiga's music, sound and speech capabilities. We'll have a roundup of Amiga music products for both novices and professionals.

—Editors

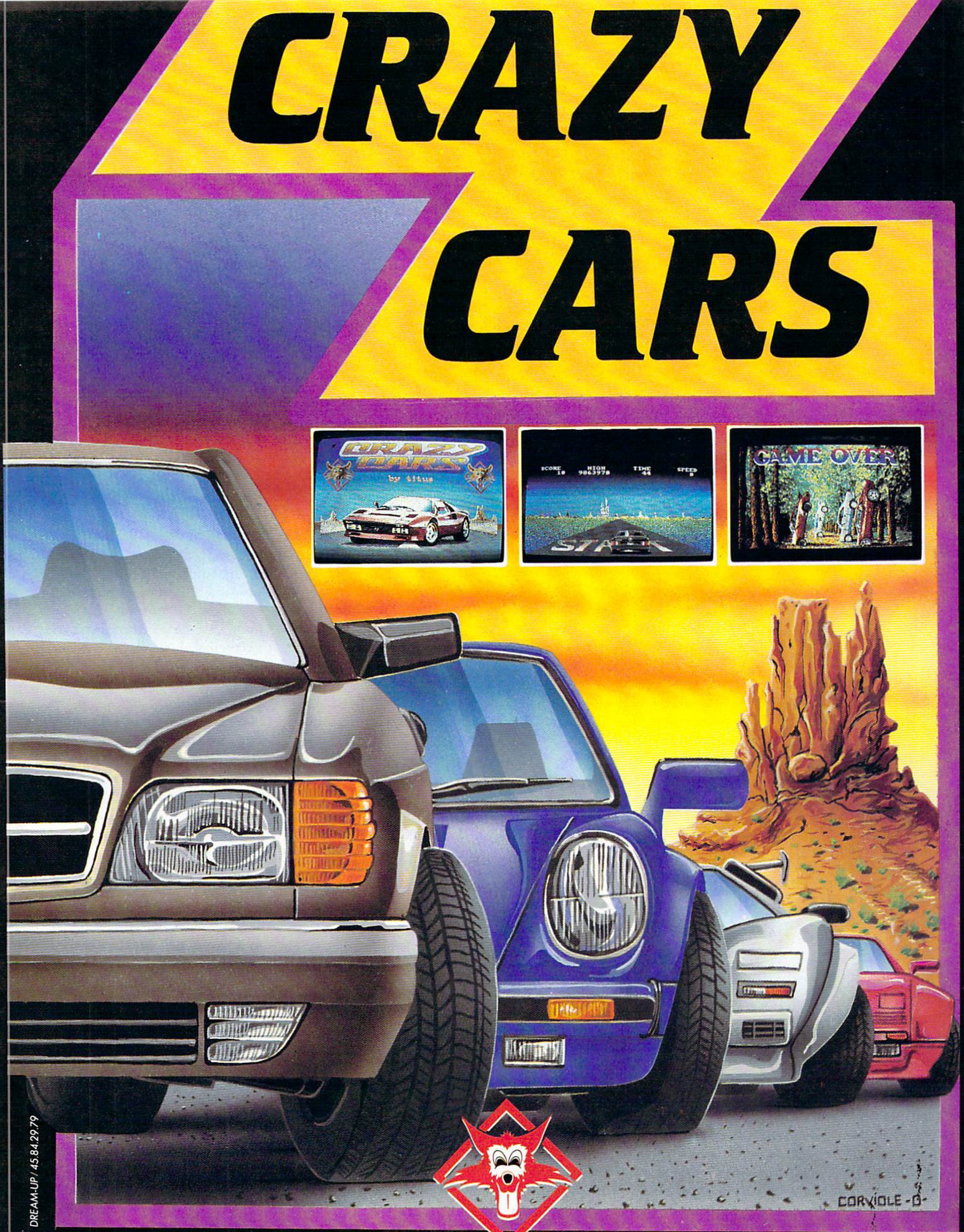
Double Protection

AFTER PURCHASING BALANCE of Power from Mindscape, I realized that it is password protected (you must find a word at a specific location in the manual each time you start a game), and decided to make a backup copy. So I made a backup copy and ran the program from the backup. It loaded, showed the title screen, asked for the password, and brought in the Guru at that very point. Disbelieving my eyes, I put in the original disk. The program loaded and ran with no problem. I tried the backup again, and again I was with the Guru. For the next two hours I tried every combination I could think of (new disk, operating system, etc.), simply because I refused to believe that someone could sell a program that is both copy protected *and* password protected! A phone call to Mindscape finally convinced me that, yes, there is such a thing as double protection.

How far will the publishers push their own protection and strip the consumer's pleasure? I felt very sad, because I like this game very much, but I'm not sure how long I can stand the possibility of corrupting the program and the trouble of finding the password each time I play it. Copy protection is something that is very often overlooked by your reviewers. The publishers may have all the legal rights to protect their products, but your reviewers can do a great service to the reader by telling him whether the software is protected, and if so, what type of protection it has.

Kuantsai Lee
Redmond, WA

Send your letters to: Repartee, *AmigaWorld* editorial, 80 Elm St., Peterborough, NH 03458. Letters may be edited for space and clarity. ■


CRAZY
CARS
GAME OVER
CORVIOLE -D-

NOTEPAD

Edited by Linda Barrett

Safe Computing

COMPUTING CAN NOT be as free and easy as it once was—no more indiscriminate warm booting, no more cold booting with strange disks, no more non-write-protected Workbench disks. With the appearance of the dreaded Amiga virus in the *AmigaWorld* offices, the staff devised "safe computing" procedures to eradicate the virus from our current disks and immunize ourselves against future infection. Try them yourself to keep your disks virus free.

Developed by a member of the self-styled Swiss Cracking Association, the virus is a program found in the boot blocks of "infected" disks. When you boot with such a disk, the virus transfers into memory and protects itself against a warm boot. If you subsequently warm boot your Amiga (Ctrl-Amiga-Amiga) with an uninfected disk, the virus replicates itself to the boot disk. For standard AmigaDOS disks, the virus isn't malevolent; it merely writes an annoying message on your screen (to the effect that your Amiga is alive) after a number of warm boots.

The virus is a danger, however, to copy-protected disks. Because the virus writes to a disk's boot block, it can destroy copy-protected disks, which have nonstandard boot blocks. The virus also could be mutated to do something more destructive than writing a message.

Controlling the virus should be a top priority of all Amiga owners. Here at *AmigaWorld*, we've taken the following steps to combat infection. When approached with understanding and good humor, these measures need not interfere with your relationship with your computer.

Boot the computer with a standard Workbench disk.

Open the CLI.

Enter Install df0: and press Return.

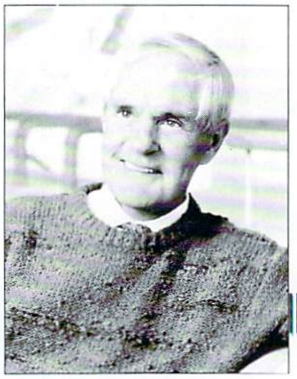
Remove the Workbench disk, set its write-protect tab to Protect (Inhibit on some disks), and write "Clean" on the disk label.

Turn your computer off for 10 seconds, then reboot with the Clean Workbench disk.

Install overwrites the virus, giving you a virus-free computer and disk. You should run Install on any standard, non-copy-protected AmigaDOS disk that you use to boot your machine. Mark all these boot disks "Clean" and, in the future, use only a Clean disk when booting. Amiga 1000 owners need not worry about their Kickstart disks; the virus is carried on AmigaDOS disks only. Once you have cleaned up your boot disks, run Install on all your standard AmigaDOS disks to thoroughly purge the virus from your collection.

Copy-protected disks are a different story. Here at *AmigaWorld*, we recommend turning off your computer before booting with a copy-protected disk and never warm booting with a copy-protected disk. After using a copy-protected disk, always power down and reboot from scratch. While time consuming, it is safer.

—RR



Cyberpunk and Psychedelia

DR. TIMOTHY LEARY (infamous psychedelic researcher of the '60s) is providing the organization, private promotion and psychic backing. Amiga artist Brummbär (just one name and you'll be hearing it often in the future) is creating the art and animation. Devo (Mark Mothersbaugh and his brother Bob of the band Devo both use Amigas) is composing the music, and Interplay is doing the programming. The star-studded project is a game, more accurately called a mind play or performance book, hinging on William Gibson's novel, *Neuromancer*, one of the first books in a new science-fiction genre called cyberpunk.

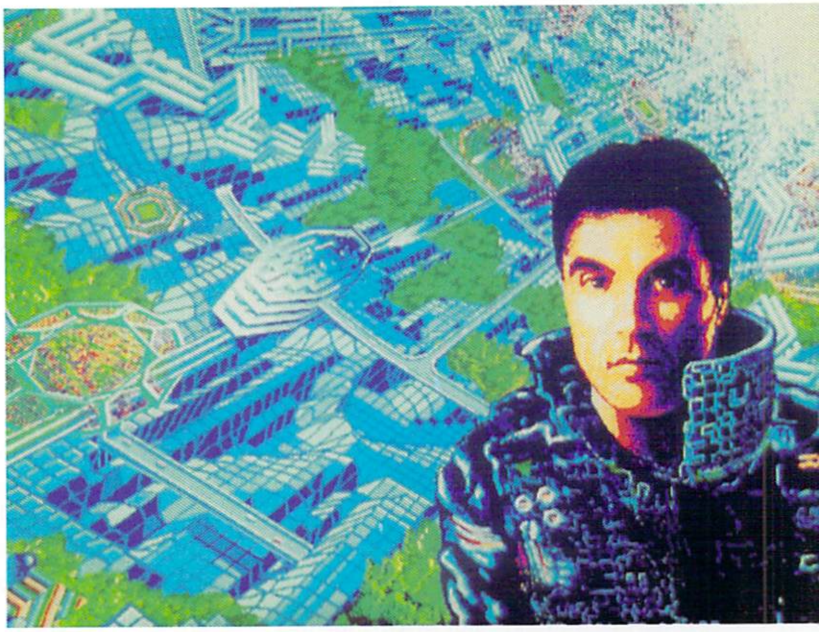
Similar to text adventures, mind plays supply the settings, antagonists and situations, while you perform the role of the main character. Rather than simply solving prearranged puzzles, however, you create and record the plot's

scenes, or acts, as you play the game. This is not to say you have totally free reign; there are many ways of ending up very dead. Later, you can play back the entire performance for others, rework the scenes or start from scratch.

Set in a future where people have surgical implants that let them plug into computers directly, *Neuromancer* has all the cyberpunk elements: rebellious youth, fast action and a "console cowboy." The hero, Case, is a master hacker and outlaw who has been chemically brain damaged so that he can no longer "jack into" the computer networks. He is hired by an unknown group to infiltrate a powerful family's private space station, which is protected by Ninja assasins, mercenaries, robots, electronic security devices and the most sophisticated computer in the known universe. To break the AI software security, Case is surgically restored and enhanced in a black market body shop. He is also booby-trapped so that if he does not complete his mission in the specified amount of time he will self-destruct. If the game is anything like the book (and Brummbär's graphics indicate it will be), then *Neuromancer* on the Amiga ought to be a real trip.

Not content merely to sit back and espouse psychic encouragement, Dr. Leary is also working on an interactive computer game (performance, experience, learning tool, mind play?) of his first novel, *What Does WoMan Want?*, with cyberpunk author Alan Mark Launchett. The program is more of a teaching tool for learning how to learn than a traditional computer game. You are asked questions about the novel, but not the straightforward yes/no, true/false, "What is the answer?" type. Your answers are more along the lines of "Yes, I know the answer," "No, I don't know the answer," "I might know the answer," "The question is irrelevant" and "I reject the question." At the end of each round you are scored on ten "dimensions of Mental Proficiency." In effect, you are learning how to learn, how to question, how to answer, skills that most of us could have used while plodding through school.

If Dr. Leary has his way the '60s will live again electronically. He also owns rights (permission, backing, blessings?) to turn works by Thomas Pynchon



Case, the console cowboy, and (opposite page) his backer Timothy Leary.

and William Burroughs into computer mind plays.

A proponent of microcomputers, science fact and science fiction, Dr. Leary believes, "Who controls the pictures on the screen controls the future, and computers let people control their own screens." If computers are one tool for the salvation of humankind, it is comforting to think that the Amiga is Leary's favorite.

—GW

SNIPping Up Muscles

AN INSTRUMENT OF torture and a scientific tool, the silver bicycle sits, locked to an ergometer, in a room in UCLA's Life Sciences building. Two cameras follow the movement of light-emitting diodes fastened on the sweating rider's body to reconstruct precise 3-D locations. As the athlete struggles to pedal through the computer simulation of an Olympic cycling course, electrodes monitor the activity of his muscles, and sensors register the pressure of his feet on the pedals.

When the torture session finishes, science takes over. While the rider relaxes, Professor of Kinesiology John Hodgson sits at his Amiga, analyzing, correlating and extrapolating the collected data to gain insight into how the brain, muscles and bones make a body move.

For this signal-processing chore, Dr. Hodgson chose the Amiga from his racks of hardware because it was the only microcomputer with the fast graphics, multitasking and RAM expansion capabilities he needed to SNIP up the reams of information. Hodgson's pet project for two years, SNIP is a scientific signal processing program that can graphically display up to 20 lines of signals and plot 150,000 points on a screen with microsecond accuracy. SNIP then quickly manipulates the data with a battery of mathematical functions to test for any significant correlations. Hodgson says, "I wrote SNIP because I'm a scientist who needs to analyze signal processing and quite frankly what's out there isn't very good. SNIP provides an object-oriented approach to signal processing where the data is presented pictorially. You can just draw a little box around any data you want to look at, and the program will snip it out and put it in a new window." With SNIP and the Amiga, Hodgson can pick out signatures of the way the brain activates and uses muscles, a study for a joint project with NASA and the Russian space agency. But SNIP is not just a muscle-bound program; it can also handle such intellectual complexities as seismic evaluation and financial forecasting.

Previously, Hodgson had to use specialized analysis programs for each function he wanted to perform; with SNIP, he can perform a myriad of calculations (filtering, rectifying, integration, differentiation) all on the same screen. His old Vax PDP-11 program took 25 minutes to plot a 150,000 point screen, while SNIP plots the same screen in one minute and 40 seconds. Those 25-minute sessions add up. Hodgson continued, "When I last applied for a grant, I estimated that the analysis I wanted to do on muscles and human movement was going to take more than three man-years. I think the Amiga will probably reduce that to about a year." For the man on the bicycle, a year of frenetic pedalling is quite enough research.

—Ben and Jean Means

HORS D'OEUVRES

Hints, tips and techniques

from your fellow Amiga users.

Crash Saver

HERE IS A tip for anyone who edits and compiles stuff in RAM:. If you use RAM: to edit, debug and compile source programs, you've probably had a program hang on you during execution and then realize that you have not saved your program to disk for about two hours!

A CTRL-Amiga-Amiga reset is all well and good, but RAM: being of volatile temperament (as RAM:s go) will have entirely forgotten all about your huge program and your last several hours of work. To avoid this, a good idea would be to add this simple line to your startup-sequence file:

```
newcli
```

Yup! This opens another CLI when you boot the system. It lies dormant until disaster strikes, and then you can use this CLI to save your file to disk before doing a keyboard reset.

Note: This crash-saving move works only for programs that wander off and never return without affecting normal Workbench functions.

David Looi
Keiraville, NSW, Australia

Clean Up Again And Again

I WONDERED IF anyone else was as frustrated with the Workbench "Clean Up" option as I was. I wanted to put the icons roughly where I wanted them positioned within a window and then use Clean Up to tidy up, but you can only use it immediately after you first open the window. Quite by accident, I discovered that if you select the parent icon of a window, Clean Up is available once again. Now all I need is a way to use the Snapshot option for an entire window without having to select every icon.

Sarah Reichelt
Labrador, QLD, Australia

D-Paint Abort Fill

USING DELUXEPAINT 1.2 from Electronic Arts, I found this handy feature. When using the fill, solid or dithered, and you discover right away that it is not what you want, press the space bar. This will stop and erase the fill while it is still in progress, instead of waiting until it's finished and hoping that you can use Undo.

Michael Weiler
St. Louis Park, MN

Assign Undo

IF YOU MISTAKENLY "ASSIGN" a non-existent logical device name, for example "ASSIGN FUNTS: DF1:FONTS", you can easily un-assign it by simply typing:

```
ASSIGN FUNTS:
```

That is all, just ASSIGN FUNTS: with nothing after it.

Adam Levin
Piermont, NY

Batch Within A Batch

HERE IS MY timesaving tip for one-drive users. Just add these lines to your startup-sequence file:

```
MakeDIR RAM:C
CD DF0:C
COPY DIR|CD|INFO|TYPE to RAM:C
  QUIET
PATH RAM:C ADD
CD DF0:
```

This adds timesaving commands in RAM. First, the RAM:C is searched for the command, and if it isn't found, then the usual SYS:C is searched.

Ferry de Jong
Huizen (N-H), Netherlands

Editor's Note: This tip is disguised as yet another startup-sequence file that creates a RAM:C. The tip is fine as it is, and we have published similar tips in the past. The unique thing about this tip is the use of the "|" (it is next to the back space key, if you are looking for it). Rather than typing a series of "copy this, copy that, copy another. . .", one line—"copy this|that|another|. . ."—handles them all quite nicely. As usual, NEVER use your original Workbench disk! Always use a copy when modifying the startup-sequence file.

Batch Screen Clear

SOMETIMES I WANT to clear the screen from within a batch file, such as the startup-sequence file. While a CTRL-L will clear the screen from the command level of CLI, I couldn't find a way of including a Control sequence in a batch file while in ED. I did find that an ESC-C would also clear the screen and could be entered into an ECHO statement in the form:

```
ECHO "*ec"
```

When the batch file is executed, the screen will clear itself (or reset) when it reaches that command. (This is actually a printer command to reset.)

Gerald Klassen
Netherlands, Antilles

If you have an idea you'd like to share with our readers, send it to Hors d'oeuvres, AmigaWorld *Editorial, 80 Elm St., Peterborough, NH 03458. If your idea gets published, you'll receive a super special, one-of-a-kind, useful yet stylish* AmigaWorld *surprise gift.* ■

Nimbus presents the first accounting program made exclusively for small businesses using the Amiga computer

Do business, not accounting

The easy new accounting program for managers of small businesses who *hate* to do accounting. With all the other record keeping programs, you have to learn accounting. With Nimbus, you just start.

It's available now—
If your dealer can't deliver it immediately, give us a call.

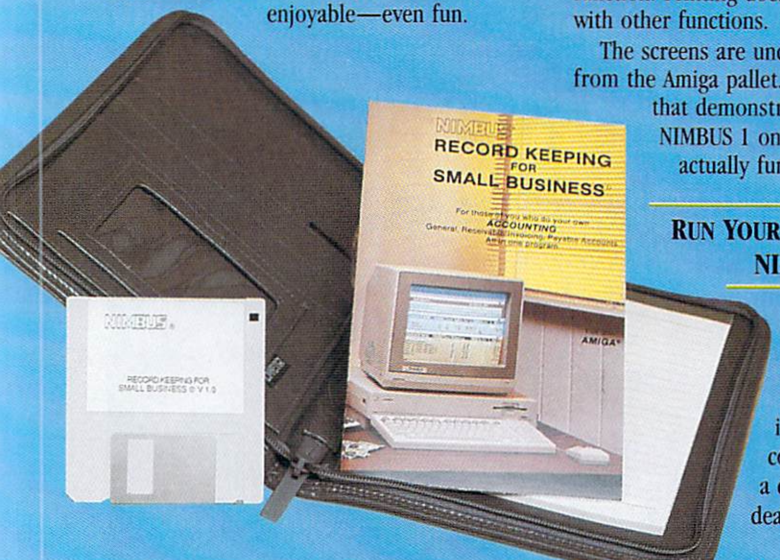
SIMPLE ACCOUNTING HAS ARRIVED

If you don't care how computer software works, only that it *does* work, this program is for you.

Nimbus 1 does the accounting, you run your business. The pain of accounting is gone.

WHAT YOU NOW KNOW ABOUT ACCOUNTING IS *ENOUGH.*

No enormous manuals here—our instruction booklet is only 12 pages long. The difference is dramatically easier, more enjoyable—even fun.



AT LAST: ACCOUNTING ANYONE CAN DO

This is the first complete small business accounting software designed to take full advantage of the genius of the high speed Amiga computer.

THIS IS INSTRUCTIONLESS ACCOUNTING

NIMBUS 1 requires no computer knowledge, no bookkeeping expertise. All of its functions are simple, self-explanatory, automatic—and *fast.* It's as easy as doing your checkbook. But don't confuse it with simple home budget programs.

NIMBUS 1: FIRST, FASTEST AND THE MOST FUN

With NIMBUS 1, all the accounting functions are running concurrently. You just click on the mouse and move into a new function. Printing does not delay or interfere with other functions.

The screens are uncluttered, using colors from the Amiga pallet. Amiga dealers find that demonstrating accounting with NIMBUS 1 on the Amiga computer is actually fun.

RUN YOUR OWN NUMBERS ON NIMBUS 1 TODAY

This is software you can use right now. Visit your Amiga dealer and try it. If NIMBUS 1 is not in stock, call us collect. We will rush a copy to you and your dealer.

FEATURES OF THE NEW PROGRAM INCLUDE:

- General, receivable and payable accounts are all interactive.
- Built-in ready to run chart of accounts and reports.
- Accounts kept on a cash basis. You know when customers pay you, not when they are supposed to.
- Equity and retained earnings accounts maintained automatically.
- Automatic computing of month-end and year-end closings.
- Prints invoices one at a time immediately, or later in a batch.
- Do three things at once. Each function has its own screen and you have instant access to each.
- All printing done in background, so you continue without interruption as your printer turns out reports.
- Daily, weekly, monthly and annual on-screen status reports.
- Programs and data require only one disk.
- Four color WYSIWYG input screens can be edited at any time. Make changes easily without a separate journal.
- No customer or vendor numbers to key in. One keystroke and one mouse-click gets any name from hundreds in less than half a second.
- Automatic pop-up mini-menus guide users through each function.
- Balance sheet, income statement, accounts receivable and accounts payable aging/status reports printed any time and automatically at end of month.
- Sold without copy protection for user convenience.

Cost: only $149.50 complete with its executive zippered notebook

You can order by phone

Oxxi inc.
P.O. Box 4000
Fullerton, CA 92634
(714) 999-6710

Circle 75 on Reader Service card.

TV*TEXT VIDEOTITLER

Title bout in the font ring.

By Gary Ludwick

WHEN IT COMES to type faces for professional applications, your Amiga needs outside help. Vying to supply that help to those involved in video and presentation graphics are VideoTitler (from Aegis Development) and TV*Text (from Zuma Group and Brown-Wagh). Each provides legible, dramatic and colorful type displays, using its own method.

TV*TEXT

One of the first programs of its kind to be released, TV*Text does an excellent job of simulating broadcast television's first electronic text generator. The program comes on a single, non-copy-protected disk, and provides 10 type faces in addition to Topaz, in sizes up to 97 points. TV*Text works with any Amiga-format font, including those on your Workbench disk.

TV*Text lets you manipulate type faces from a preferences menu in several ways. Color defines the object's face color, and style relates to the rendering (i.e., edged, outlined, extruded). Shadow controls include depth, type (transparent, drop, cast or strobe), the shadow's color and the direction of the light source. Additionally, pull-down menus allow you to rotate the text through 180 degrees in 45-degree increments. You can also magnify or reduce text, and induce or correct distortions.

TV*Text offers several supplementary features including the ability to specify and lay down grid patterns, create tile or wallpaper backgrounds, and draw lines, circles, boxes and ellipses. It also permits rudimentary kerning (adjustment of spacing between letters).

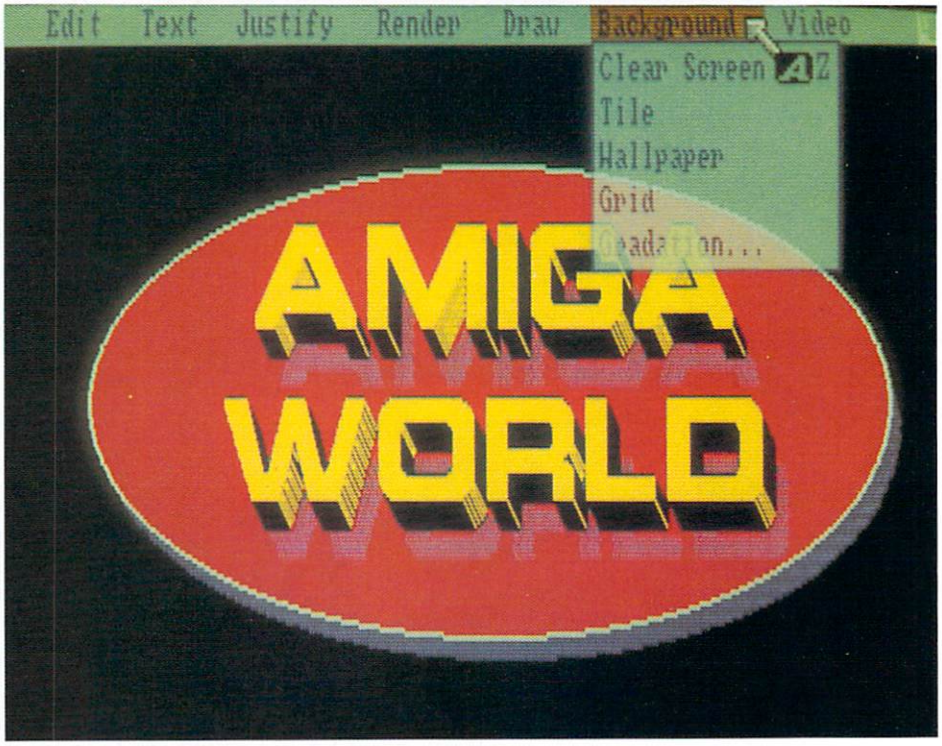
VIDEOTITLER

If TV*Text represents the first generation in video/presentation graphics, then VideoTitler comes close to being the second. Its approach is different, and its features and sophistication are further advanced.

VideoTitler comes with one program disk and one data disk, both of which are unprotected. Like TV*Text, it is compatible with all Amiga fonts and IFF-file structures. VideoTitler offers nine custom fonts as well as the standard Amiga faces.

Perhaps VideoTitler's most powerful feature is its Styles command. With it you can totally change, or simply enhance, the look of any font. VideoTitler provides a menu of over 20 type-styling treatments, ranging from plain and 3-D to several different neon and starburst effects. These effects and the graphic and color gradations that comprise them are automatic; just pick a style. Aegis includes an "expert" mode that allows you to customize these styles to your heart's content. The only major effect missing is the popular brushed aluminum/chrome look; its inclusion would make the Styles section truly complete.

Another powerful feature is Poly Text, a family of five custom fonts which, like the poly figures in some drawing programs, allow infinite manipulation, distortion, resizing and kerning.►



Title defender TV*Text, with background options.


ACTIONWARE™
The Ultimate Action Adventures
Go ahead... Make Your Day!
Now you can shoot the bad guys with this real-time action shoot-'em-up adventure. Just connect the Actionware PHASER™ to the game port (or use your mouse) and you're ready to combat evil in an exciting action packed world!
It's your choice . . . CAPONE™ gangsters in Chicago, P.O.W.™ enemies in Asia, CREATURE™ aliens aboard your spaceship.
Each Action Adventure only $39.95
Actionware PHASER (optional) $49.95
See your Dealer or call 1-800 848-2333 to order
In Illinois (312) 879-8998
VISA/Master Card accepted
CAPONE
P.O.W.
CREATURE
Actionware Corporation
38 W 255 Deerpath Road Batavia, Illinois 60510
Circle 7 on Reader Service card.
AVAILABLE ONLY FOR THE AMIGA WHICH IS A TRADEMARK OF COMMODORE-AMIGA

Combining Poly Text and Styles, you can accomplish spectacular feats! Recently I was working to achieve a neon effect on a logo for a commercial. Using an AVA graphics computer system worth hundreds of thousands of dollars, it took several hours to get even close to the effect I wanted. I produced that effect with VideoTitler, however, within 30 minutes!

Another feature included in VideoTitler is Anim, a program—developed by Aegis and distributed in the public domain—for animating sequences from Videoscape and Sculpt-3D, and now VideoTitler. Anim allows you to record frames and play them back with limited control. For instance, you can make neon titles seem to ripple or flash, and make borders or other effects appear to draw themselves onto the screen.

Aegis has also supplied a separate program (with its own manual) called VideoSeg (Video Special Effects Generator). Essentially, it is a deluxe slide show program that plays still pictures or Anims in a script-defined sequence and allows you to use transitions such as fades, dissolves, flips and wipes, just like on television. You can use these effects with special patterns, like diamonds and blocks, on wipes and dissolves. Some cursory run-throughs indicated that it works as promised.

Bout It Out

While TV*Text supplies six working resolutions, VideoTitler provides 12. Included are four video resolutions: low, video, medium and high. To increase apparent sharpness of video recordings, lower memory requirements and maintain a 32-color palette, Aegis has doubled the vertical lines in its video resolution, but kept the horizontal lines at 320. Video and high resolutions are interlaced to maintain compatibility when recording to videotape. VideoTitler also provides three levels of overscan (off, medium and severe) to ensure that frames transferred to videotape or monitor will exhibit each picture full frame, without background border.

Another important difference between TV*Text and VideoTitler is in their palettes. TV*Text, in any of its resolutions, offers an eight-color palette. VideoTitler offers 32 colors in low and video resolutions, with 16 in hi-res. VideoTitler also provides standing palettes that are compatible with other Aegis products, and a special users palette designed to give superior results when dumped to videotape without an expensive genlock.

If you own a late model Amiga 1000 or a new 500 or 2000, you can effectively double the number of colors available to you in low and video resolutions with VideoTitler. VideoTitler is designed to take advantage of the rather obscure Extra_Halfbrite (EHB) mode afforded by those models' Paula chips. While the actual number of colors doesn't change, you will have a second palette at half the intensity or saturation of the first. The manual incorrectly states that early A1000s support EHB, but redeems itself by providing directions for you to test your machine for the capability. Aegis also supplies the Commodore part number so you can replace your Paula chip if your test results are negative.



VideoTitler packs a powerful punch.

While TV*Text loads and uses one font at a time, VideoTitler can hold 10 different fonts in memory at once, and switching between them is almost instantaneous.

If VideoTitler had performed as flawlessly as TV*Text I would give it an unqualified recommendation—as long as you have one meg or more of memory (512K won't do much with this program). In normal use (without testing crash potential), the program collapsed more than half a dozen times, inducing wild screen displays, thrashing drives and lock-ups. I would have loved to discuss these problems with someone at Aegis, but there was another problem: neither their address nor their phone number appears in the documentation or packaging. There wasn't even a registration card in the sealed package I received! Figuring this was an oversight, I pulled their number out of an *AmigaWorld* back issue and called for help. A representative took my number and promised that someone would get back to me. After 30 hours, I called again and got the same response . . . I'm still waiting.

TV*Text, on the other hand, worked perfectly; no bugs, no crashes, no problems. The manual is on the skimpy side and has no index, but the program is simple enough so that you can learn through experimentation whatever you can't find documented. It is limited in scope and effect, but if you have a 512K machine, this is the one for you. Its font effects are dated, but it's far superior to using stock-Amiga fonts for presentation or video purposes.

If you want awesome power, effects and a 1988 look, though—and you can live with crashes (at least in the current version)—grab VideoTitler. For an extra 50 dollars, it's an incredible value.

TV*Text
Zuma Group
distributed by Brown-Wagh Publishing
16795 Lark Ave., Suite 210
Los Gatos, CA 95030
408/395-3838
800/451-0900
$99.95
512K required.

VideoTitler
Aegis Development Inc.
2210 Wilshire Blvd., Suite 277
Santa Monica, CA 90403
213/392-9972
800/345-9871
$149.95
512K and two disk drives required.

IntroCAD

Semi-pro CAD for rookies.

By Louis Wallace

BECAUSE IT WAS billed as a low-cost yet high-powered computer-aided-design (CAD) program, I was anxious to see just how IntroCAD would compare to existing Amiga CAD software. IntroCAD is a significantly enhanced version of Tim ►

We Feel It Is Unfair Of The Major Software Companies To Avoid The AMIGA.

Publishing Partner Professional,™ designed to be better than the desktop publishing "standard."



Publishing Partner Professional	Pagemaker
• We think desktop publishing should be enjoyable. Our user interface reflects this — have fun! And, if you need help, look in the manual, it even has an index!	• There are books written on how to use it.
• Your text will flow automatically around any irregular-shaped graphics giving a very professional look quickly.	• A picture tells a thousand words — so who needs words?
• Create crisp-looking, readable paragraphs. You can, with our auto-hyphenation, auto kerning, user definable kerning pairs, and auto-leading control all in increments down to 1/3600th of an inch!	• They knew these functions are essential but leading only down to 1/2 a point?
• Import those beautiful Amiga graphics from virtually any art program and print them in color or shades of gray. Or you can draw them as you go with our complete graphics toolbox.	• Amiga graphics?
• And, if you spell something wrong, the spell checking feature will find it for you, saving you time and perhaps embarrassment.	• Hopefully you are a good speller.
• Import from most all word processors including those with ASCII or IFF text formatting or have them running in the background.	• It is vitally important to support word processors and they knew this.
• We include drivers for virtually every printer, dot matrix or laser at no extra charge. So, now, you can create beautiful documents using the printer you already own.	• They also realized that if the printer support is weak, why bother?
• Need to change a word in one place or throughout the document? Our search and replace feature will make it quick and easy for you.	• Do it right the first time.
• It will always look great quickly, using our premade style sheets. Or, do it yourself with the tag and master page system.	• It would sell better if they did.
• You are very precise and you need flexibility, so our font point size range is from 1/50th of a point to 1.310 points in 1/50th of a point increments! And, we use scalable fonts so no jaggies!	• If you are average, the range of 4 to 127 points one point at a time should suffice.
• You can view your document in 50%, full width, full page, multiple page, actual size, or 200%, or set your own between 15 and 999%!	• You can view your document in only the five different ways they have picked for you.
• We don't copy protect.	• They too, know that professionals don't cheat.
• You can open multiple windows with different documents or different pages and go from one to the other editing as you go.	• Facing pages only please.

Publishing Partner Professional™ — the new standard. Aggressively priced at only $199.95.

ATTENTION PageSetter OWNERS! We think you will like ours better. We are so sure, that for only $50 we will send it to you. Call (314) 894-8608 or send your program disk and $50 plus $5 for shipping to Soft Logik. This is a limited-time offer.

SOFT LOGIK™ CORPORATION

PO Box 290071 • St. Louis, MO 63129 • (314) 894-8608 • Fax (314) 894-3280

Circle 211 on Reader Service card.

Mooney's shareware program, MCAD.

Unlike pixel-oriented paint programs, CAD takes a whole-object approach to drawing; each line, box, circle or letter is stored in memory as a set of coordinates, not as pixels. This allows you to manipulate objects as individuals or groups, altering their size, orientation and position with precision and accuracy. When output to a printer or plotter, CAD programs use the highest resolution available to render the image, instead of merely printing what is on screen.

IntroCAD uses only the 640 × 400 (16-color) graphics display, which means it produces sharp, clear lines. It also means that, even though the program uses a color palette to minimize flicker-causing contrast, you will experience some screen flicker unless you have a high-persistence monitor.

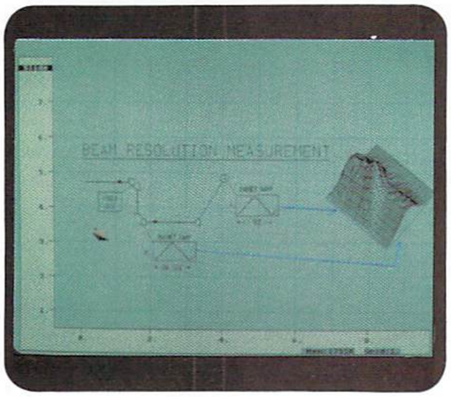
IntroCAD offers basic drawing tools including Line, Box, Circle, Arc and Text as well as one mathematically-defined font. You can determine the size of the text and position it anywhere on the drawing. It has a tool for measuring the distance between points and a clone tool for duplicating objects or groups of objects. It also includes a freehand-drawing tool, which is unique for CAD programs. Interestingly enough, freehand drawing does not produce mere bitmap lines, but rather objects that you can manipulate later.

Beyond Training Camp

You can alter objects in a variety of ways, all without disturbing neighboring lines. You can easily select an object from a group of overlapping objects, then rotate it or change its size or position. You can also change an object's color or linetype, or erase it altogether. One of the most powerful editing features is Point, which turns an object into a set of points that you can grab onto and pull, altering it only in the selected area.

The program supports a variety of other non-drawing options. One is Redraw, which allows you to refresh the screen image. Zoom, which focuses on any area for greater detail, reveals the power of object-oriented graphics. Unlike paint programs where the zoomed area is made out of larger pixels, in CAD you retain the same resolution; the on-screen ruler makes clear, though, that what you see is just a portion of the drawing. When you have finished editing, you can view the full drawing with the Fullpict command. The formerly-zoomed area will look smaller, yet it retains accuracy.

How large a drawing can IntroCAD represent? I displayed a 100 × 100-inch drawing; it could have been much larger, but I got tired of sliding the drawing around (using the Slide tool). On-screen rulers can be toggled on or off. You can set up a variable-size grid, and force the lines to the edges with Gridsnap. You can also display available memory, mouse coordinates, the currently-selected drawing tool and other information on screen. Drawings can be stored for future revisions.



IntroCAD winds up with ease of use.

With the Group command, you can assemble pieces and treat them as one object for editing. You can save groups to disk as Parts, and then reuse them in other drawings (they can also be ungrouped). These features, along with the ability to generate a library of parts, makes IntroCAD suitable for complex applications (electronic schematics or architectural rendering) that often re-use objects. Unfortunately, it cannot generate parts lists from finished drawings, a feature often considered essential for professional packages.

I was pleasantly surprised to find that IntroCAD uses its own drivers (instead of the Amiga Preferences printers) to generate the highest resolution dot-matrix printer output possible. Unlike other programs that bypass Preference options, IntroCAD supports more printers than Preferences! The disk contains numerous printer definition files, but a Read_Me file states that not all have been tested. There are only three plotter definition files (DMPL, HPGL and HP7470A).

One of IntroCAD's most impressive features is its high-speed screen update. It renders even the most complex drawings much faster than many higher-end CAD programs. However, unlike some CAD packages, IntroCAD can only display one drawing at a time.

I found IntroCAD to be very fast and remarkably versatile. It cannot replace sophisticated professional packages, but in some ways it is better. It is simple to use with a straightforward Intuition interface, and it supports a large number of printers. If you need more than entry-level CAD, but your pocketbook will only allow an inexpensive program, you will be very pleased with this package.

IntroCAD
Progressive Peripherals & Software
464 Kalamath St.
Denver, CO 80204
303/825-4144
$79.95
512K required.

Write & File

As the developer giveth, so the developer taketh away.

By Michael Brown

WRITE & FILE, from the Softwood Company, integrates a What-You-See-Is-What-You-Get word processor with a simple, but useful, database program. Hard-disk owners will be pleased that the program is not copy protected, but it requires at least one megabyte of RAM, and two drives are recommended.

The Write Side

Write & File offers most common word processing functions (cut and paste, search, replace and undo) plus a simple document analysis feature, spelling checker and integrated database. You can type in all eight Workbench fonts and font sizes. (The manual does not mention support for user-supplied fonts.) However, when you use multiple fonts, the program does not space the lines proportionately; the spaces between lines containing large fonts are much greater

Continued on p. 54

Express Paint

VERSION 2.0

A Stroke of Graphic Genius.

After two years of incredible graphics programs on the Commodore-Amiga, is there room for improvement? You bet there is! Just take a look at Express Paint Version 2.0. It adds a whole new dimension to professional graphics tools.

64-Color Extra Half Brite Mode

What's so special? Take brushes, the artist's primary tool — Express Paint lets you use any image as a brush, even if it's as large as the screen! You can replace colors in brushes and even use more than one brush at a time, without wasting time with disk accesses.

Explore special effect tools such as rotating, distorting, stretching and mirroring. Create double arc curves, loops, half circles, arrowheads and unique line patterns. Use spray tools for color ranging, smearing, blending and masking. Add the power of multiple image locking, giving you almost unlimited ''undos'' for

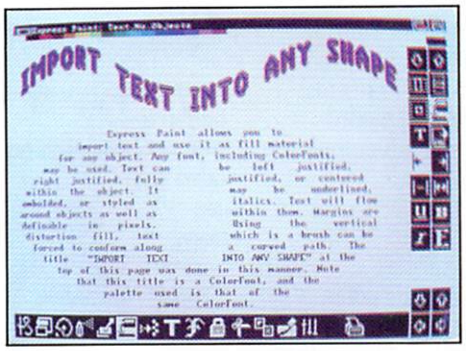


changes. In no time, you could easily find yourself creating stunning 64 color masterpieces like the one above.

Circle 164 on Reader Service card.

Text Processing with PostScript™

Most other graphics programs stop when it comes to text processing. Not here. Express Paint lets you import text from your favorite word processor, select any font, even Colorfonts™, and place it



anywhere. Then touch it up with justification or styling. You can even flow the text into an image of any shape!

Of course, it wouldn't be a masterpiece if it couldn't be printed. When it comes to output, Express Paint really shines. Not only does it support all the major dot-matrix and color printers including high-resolution 24-pin devices, but now Express Paint supports PostScript for laser printing!

Express Paint Version 2.0

$99⁹⁵

Developed by:

Professional Automation Resources, Inc.
P.O. Box 1089, Vancouver, Washington 98666

Features Found Nowhere Else

Top it off with some of these unique features: prints any image up to six times normal size for super posters, prints all or selected parts of an image, uses an oversized paint canvas for video production, provides 64 color Extra Half Brite mode, and supports PAL/NTSC video standards plus overscan.

To do your best, you need the best tools available. Look to see if you can find these tools anywhere else. Even DeluxePaint™ leaves you empty-handed.

	Express Paint	Deluxe Paint II
PostScript compatible	Yes	No
Reduce/enlarge print	Yes	No
Poster-size print	Yes	No
Vertical page size (pixels)	Unlimited	1024
Horizontal page size (pixels)	8192	1024
Extra Half Brite Mode	Yes	No
Unlimited locks	Yes	No
Multiple active brushes	Yes	No
Text importing	Yes	No
Text justification	Yes	No
Half circles	Yes	No
Arrowheads on lines	Yes	No
Numerous line patterns	Yes	No
Copy protected	No	Yes

Order today and find out why more people think Express Paint is the graphics program of choice.

See your local dealer or call:

Brown-Wagh Publishing

1-800-451-0900
1-408-395-3838 *(in California)*
16795 Lark Ave., Suite 210, Los Gatos, CA 95030

BASIC By The Numbers

If you've had enough of winter drabness, put some color(s) back in your Amiga Basic programming with custom screens and windows.

By Bob Ryan

28 Over The Rainbow

TIRED OF SEEING the same old Workbench colors in your Amiga Basic programs? Blue, white, black and orange may have been nifty on the hi-res screen of a vintage 1978 Apple II Plus, but they sure look bland on your brand-new Amiga. Luckily, Amiga Basic gives you the means to change the default colors of your output window—the PALETTE statement.

The PALETTE statement looks like this:

```
PALETTE color-id, red-value, green-value, blue-value
```

The color-id is a constant or variable that indicates the color you are changing. The standard Amiga Basic output window has four colors, numbered 0 through 3. The next three values in the PALETTE statement are constants or variables that describe the percentage of red, green and blue in the color you are defining. Each of these values is a number between 0 and 1. For example, to set color 3 to white, you would use the following statement: PALETTE 3, 1,1,1; to set color 3 to black, you would use PALETTE 3, 0,0,0. Other colors use other values; you can see page 8-104 of your Amiga Basic manual for a list of values for some colors, or you can play around with the following program:

```
REM Color Tester Program
Main:
  PRINT "Enter red, blue and green values and see the results."
  GOSUB Enter
  LINE (400,100)-(600,180),3,BF
  GOTO Main
Enter:
  RedIn:
    LOCATE 10,1
    INPUT "Red Value:  "; red
    IF red < 0 OR red > 1 THEN RedIn
  GreenIn:
    LOCATE 14,1
    INPUT "Green Value:  "; green
    IF green < 0 OR green > 1 THEN GreenIn
  BlueIn:
    LOCATE 18,1
    INPUT "Blue Value:  "; blue
    IF blue < 0 OR blue > 1 THEN BlueIn
  PALETTE 3,red,green,blue
  RETURN
```

29 Random Rainbow

OF COURSE, IF you don't feel like entering a lot of numbers, you can always let your computer do it for you. Try entering the following program:

```
REM Random Colors
RANDOMIZE TIMER
Loop:
  CLS
  red = RND
  green = RND
  blue = RND
  LOCATE 12,1
  PRINT "Red:  "; red
  PRINT "Green:  "; green
  PRINT "Blue:  "; blue
  PALETTE 3,red,green,blue
  LINE (250,50)-(600,180),3,BF
  FOR x = 1 to 5000:NEXT x
GOTO Loop
```

►

DESKTOP VIDEO

MAKING VIDEOS AND SLIDESHOWS Ohhh... so easily

TV*TEXT

Have you ever watched T.V.? Really watched? Notice the words or names on the screen. Different sizes and styles of lettering, accented for impact with shadows and colors. Logos with a combination of colors, letters, shapes and shadows — presenting a message and leaving a lasting impression. With **TV*TEXT** you can now create the same type of exciting titles and special effects on your Commodore-Amiga personal computer.

TV*TEXT is *so easy* to use — real Amiga style; mouse, pull-down menus, keyboard controls, "undo" commands, multitasking. It's *flexible*; IFF compatible, runs in high or medium resolutions, supports overscan, PAL/NTSC, genlocks and any fonts and styles. *Functional* — you bet; shadows, strobes, 3-dimensional extrusion, background patterns, color gradation, object rotation, sizing, alignment, drawing tools and more.

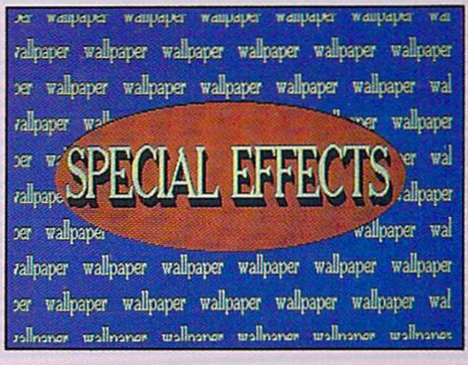


Give your screen paintings, printed drawings, slideshows and videos that professional finished touch. Make a lasting impression — the *easy way* with **TV*TEXT**.

TV*SHOW

While watching T.V. did you see how one screen spirals to another, how the logo flies in from one side, or how the final screen fades away? With **TV*SHOW** you can create that same action on your own slideshows or videos.

It's *so easy* — just use **TV*SHOW** to select any screens created by TV*TEXT, Express Paint™ or other IFF compatible programs. Use the mouse to pick from over 40 exciting screen and object transitions such as rolls, reveals, wipes, pushes, flys, fades, splits, spirals and cuts. Set the timing sequence. Play it, edit it, play it again. Perfect it until you have a hit!



TV*SHOW gives you full control. Play your script continuously or one step at a time, forward or backward with mouse controls. Loop back to a preset place in the script. Activate script segments by keyboard function keys. Narrate with synthesized speech for unattended operation. Play the script from the editor or distribute your script freely on a player program disk.

Use **TV*SHOW** with all screen resolutions (including overscan and HAM), PAL/NTSC video signals, genlocks, international keyboards and multitasking. For video production, sales presentations, entertainment or education — add the sizzle that makes the difference — with **TV*SHOW**!

TV*TEXT and TV*SHOW require 512K RAM;
1 MEG RAM recommended for TV*SHOW.

Developed by

Zuma Group

Each is incredibly priced at:

$99.95

Other products by **Zuma Group**:
Zuma Fonts Vol. 1, 2, 3 - $34.95 each

See your local dealer or call:

Brown-Wagh Publishing

1-800-451-0900
1-408-395-3838 *(in California)*
16795 Lark Ave., Suite 210, Los Gatos, CA 95030

Circle 166 on Reader Service card.

30 What You See Is What Workbench Gives You

NO MATTER HOW much you fiddle with the PALETTE statement, you can never get more than four colors on the standard Amiga Basic output window at one time. The reason is that the output window is associated with the Workbench screen and the Workbench screen is limited to four colors. This limitation is tied to the system the Amiga uses to create its output display.

The Amiga communicates through windows—rectangular areas on your monitor that provide output from programs and let you input data into a running program. The input can be as simple as a mouse click or as complex as coloring pixels in a paint program.

Windows can have various features. They can be repositioned and resized, they can be moved back to front and back again. Requesters can appear in them and menus can be associated with them. Some windows have all these features, others have one or two. The programmer decides which features he or she needs.

Windows do not exist in a vacuum. All windows on the Amiga are opened on a screen. Do not confuse this screen with your monitor screen; an Amiga screen is a data structure that defines the basic attributes of the output display. Windows opened on a screen share these basic attributes. The attributes determined by the screen structure are the resolution and the number of colors of the output display.

When you run Amiga Basic, the output and list windows are opened on the Workbench screen. The Workbench screen is 640 pixels wide by 200 pixels tall. This is medium resolution on the Amiga. The Workbench screen is two bit planes deep, resulting in a maximum of four on-screen colors at one time. Windows that open on the Workbench screen, such as the Amiga Basic windows, take their resolution and number of colors from the Workbench screen. Screens define the environment that windows inhabit.

Note that a window on the Workbench screen need not use all four colors available or be 640 pixels wide by 200 pixels tall. The programmer can choose to use fewer colors and to make a window smaller (or larger, in special cases) than the Workbench screen. A window will exactly match the number of pixels of the underlying screen when the window is sized to cover the entire output display.

Given the limitations of the Worbench screen, how can you use more colors in your Amiga Basic program? Why, simply create your own screen.

31 Delving Into Bit Planes

YOU USE the SCREEN command to create custom screens from Amiga Basic. It looks like this:

SCREEN screen-id, width, height, depth, mode

Screen-id is a constant or variable from 1 to 4. It identifies the screen and is used by the WINDOW statement to open windows onto the screen. Width and height describe the dimensions of the screen. Width is a value from 1 to 640, height is from 1 to 400. Depth is the number of bit planes assigned to the screen, from 1 to 5, and determines the number of colors available to windows on the screen. To determine the number of colors available to any screen, use the following formula:

colors $= 2^n$ (where n = the number of bitplanes)

Thus, a screen with three bit planes can have up to eight colors (2^3); a screen with five bit planes can support 32 colors (2^5).

Mode is a special value from 1 to 4 that defines the resolution of the screen. You might wonder why you need mode when have already set the width and height of the screen. In fact, you can create screens that are smaller or larger than the dimensions of your output display. Mode refers to the dimensions of a screen that exactly covers the output display. For now, use only the width/height/mode combinations given below. When you get comfortable creating screens and windows, try your own combinations.

Width	Height	Mode	Description
320	200	1	low resolution
640	200	2	medium resolution
320	400	3	interlaced
640	400	4	high resolution

Here are some example SCREEN statements:

```
SCREEN 3, 320, 400, 5, 3
SCREEN 1, 320, 200, 3, 1
SCREEN 1, 640, 400, 1, 4
```

Because the SCREEN statement allocates memory, you should use a SCREEN CLOSE statement before you exit any program that creates a custom screen. The syntax of the statement is SCREEN CLOSE screen-id, where screen-id is the number of the screen you want to close. If you exit a program without executing a SCREEN CLOSE statement, you can enter the statement into the Amiga Basic output window in order to free up the memory.

It is also important to note that screens with higher resolutions and more colors take up more memory than simple screens. Because screen memory comes out of chip memory, you may encounter out-of-memory errors if you open up too many complex screens and windows. ►



AT LAST...
Data, Pictures & Sound, All In One Database

Didn't you buy your Amiga for its incredible integration of data, pictures and sound? **SoftWood File IIsg** is the only database manager on the Amiga which can manage all that information *together!*

Think about the possibilities—membership rosters with pictures, real estate listings with house plans, record collections with digitized music and sounds, recipes with colorful photos, pictorial vocabulary lessons, foreign language pronunciation, and much more.

Developed by:

SoftWood

SoftWood File IIsg

512K Required;
2 Drives Recommended

Of course, **SoftWood File IIsg** doesn't just store the information. It lets you *manage* it. Calculations, multilevel sorting, searching by example or range, simple lists, detailed reports and mailing labels. It's ohh. . . so simple. View a file like a spreadsheet with rows and columns or customize your own format. You can even present information in a slideshow, showing pictures and playing sounds simultaneously!

You treated yourself to an Amiga. Now treat yourself to **SoftWood File IIsg.**

Incredibly priced at:

$99.95

Educational Discounts Available

See your local dealer or call:

Brown-Wagh Publishing

1-800-451-0900
1-408-395-3838 *(in California)*
16795 Lark Ave., Suite 210, Los Gatos, CA 95030

Circle 165 on Reader Service card.

32 She Came In Through The Intuition Window

CUSTOM SCREENS ARE useless without windows. Opening a window on a custom screen from Amiga Basic requires the WINDOW statement. The WINDOW statement looks like this:

```
WINDOW window-id,title,upper_left-lower_right,type,screen-id
```

Window-id is a number that identifies the window, and title is a text string that appears in the title bar of the window. The next two parameters describe the coordinates of the upper-left and lower-right corners of the window in relation to the underlying screen. Type describes the attributes of the window, such as resizing, front-to-back gadget, and so forth. Finally, screen-id is the number of the screen that contains the window.

Putting the WINDOW and SCREEN statements together, we can get lots of colors in an Amiga Basic window.

```
REM New Boxes Demo
RANDOMIZE TIMER
SCREEN 1, 320, 200, 5, 1
WINDOW 2, "New Boxes", (0,0)-(311,186),1,1
FOR x= 1 TO 10000
  xmax= WINDOW(2)
  ymax= WINDOW(3)
  x1= INT(RND*xmax)
  x2= INT(RND*xmax)
  y1= INT(RND*ymax)
  y2= INT(RND*ymax)
  colnumber= INT(RND*32)
  LINE (x1,y1)-(x2,y2),colnumber,BF
NEXT x
WINDOW CLOSE 2
SCREEN CLOSE 1
END
```

This program re-creates the Workbench Boxes demo on a custom screen with 32 beautiful colors. Note that the coordinates used in the WINDOW statement do not fill the entire screen. You have to make the window slightly smaller because Amiga Basic puts a border around any windows it opens.

Contest Winner

THE WINNER OF the contest from the March 1988 BASIC by the Numbers column is Matt Lynch of Littleton, MA. Matt was the first reader to recognize that the contents of the example array were all names of former pitchers for the Boston Red Sox. Matt also pointed out that each of these pitchers (Smokey Joe Wood, Dick Radatz, Babe Ruth, Jim Lonborg and Sparky Lyle) ended their careers with teams other than the Red Sox. As for his prize—the Amiga game of his choice—Matt wrote "Earl Weaver Baseball, of course!"

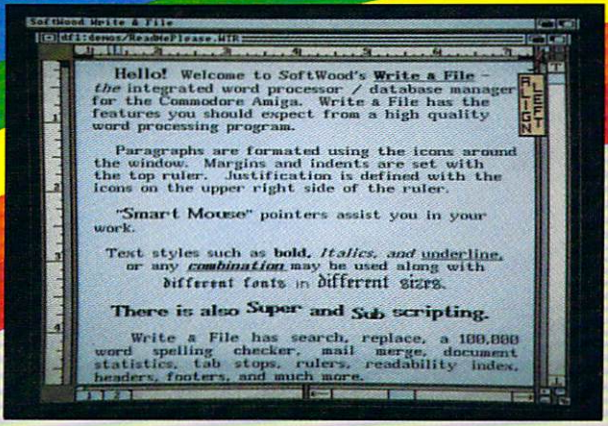
A special prize (a game of our choice) goes to Dodson Yaple of New York for the best, if not first, letter to reach our offices. His observations on baseball, geography and life were much appreciated by AmigaWorld *"Hot Stove Leaguers" as we anxiously awaited the beginning of a new season.*

Send your letters to BASIC By The Numbers, AmigaWorld, *80 Elm St., Peterborough, NH 03458.* ■

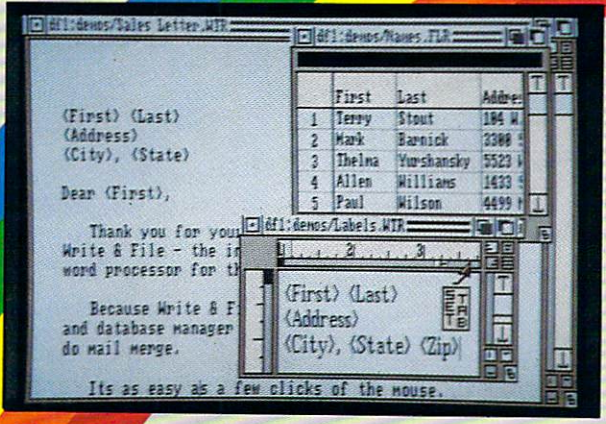
Softwood
WRITE & FILE
Integrated Word Processor/Database Manager

Multiple Font Styles, Spell Checker and Powerful Features make **Write & File** a SUPER Word Processor. The Integrated Database Manager for Reports and Mail Merge Make it SUPERB!

- Features unique "Smart Mouse" and "Undo"
- Search/replace; headers, footers; hor/vert. rulers
- Prints in graphics (pretty) or text (fast) modes
- Includes over 100,000 word dictionary
- Supports foreign letters, paper size, currencies



WYSIWYG—uses any Amiga font styles and sizes



Manage lists while writing document

- Views multiple database records at a glance
- Manages data in rows/columns like a spreadsheet
- Sorts and searches on multiple criteria
- Calculates fields using math formulas
- Merges lists with documents for labels/envelopes

The First to Provide a DOCUMENT READABILITY INDEX!

Developed by: SoftWood

Incredibly priced at:

$99.95

1 meg required/2 drives recommended

See your local dealer or call:

Brown-Wagh Publishing

1-800-451-0900

1-408-395-3838 *(in California)*

16795 Lark Ave., Suite 210, Los Gatos, CA 95030

Circle 101 on Reader Service card.



When it's Time to Get Organized, WordPerfect Library™ is the Key.

Whether you're a new Amiga user or a seasoned professional, WordPerfect Library's integrated programs make it easy to organize your appointments, notes, files, and programs.

The Calendar program keeps track of your daily schedule and will remind you of important appointments by sounding a preset alarm. From the information on your Calendar, you can print memos and to-do lists for each day, week, or month.

Library's Notebook program can organize a collection of information into separate records, containing everything from recipes to mailing lists to telephone directories. Each Notebook file is saved in WordPerfect Merge format, allowing you to easily transfer the information to a WordPerfect document.

The Calculator program is designed to meet a variety of needs with financial, programming, and scientific functions. For example, with the Financial calculator, you can amortize a loan or calculate the future value of a 10-year bond.

The File Manager helps you arrange your program and data files into workable groups. You can delete, rename, print, mark, or look at a file from the File Manager screen and sort files by name, size, or date. Changing directories is quick and easy.

For those who need the power of a text editor, Library's Program Editor includes such features as Duplicate Line, Hex Edit, List Files, Macros, Search/Replace, Separate Printing, and multiple Block functions.

Like other WordPerfect Corporation products, WordPerfect Library is easy to learn with its intuitive commands and on-line help. Full documentation and toll-free support are also included with each package. And at $129.00, you can't find a better value.

For enhanced office productivity, the key's within easy reach: WordPerfect Library. Contact your local dealer or

WordPerfect
CORPORATION

1555 N. Technology Way · Orem, Utah 84057 U.S.A.
Tel: (801) 225-5000 · Telex: 820618 · FAX: (801) 227-4288

Circle 64 on Reader Service card.



UNDERCOVER OPERATIONS: SECRETS OF THE NEW OS

As we debriefed our man Ryan after his lengthy surveillance of the elusive 1.3, he revealed that the new version of the Amiga Operating System looks like a performance winner.

by BOB RYAN

ILLUSTRATED BY ELLIOT BANFIELD

LONG UNDER WRAPS at Commodore, and eagerly anticipated by the rest of us, the new version of the Amiga Operating System finally came in from the cold. And underneath the 1.3 trench-coat, there is plenty of good news for Amiga users.

The 1.3 release does not change the basic organization of the Amiga system; instead it includes enhancements that address shortcomings in earlier versions and additions that make the Amiga more powerful and useful. Common complaints about OS 1.2 focused on the relatively slow hard-disk access, the inability of the Amiga to boot from a hard disk and the mediocre performance of the printer drivers. These problems and more have been addressed in OS 1.3.

Drawing upon resources both inside and outside the company, Commodore software engineers under the direction of Andy Finkel have put together new versions of Kickstart and Workbench that will improve Amiga performance. Unlike earlier upgrades to the operating system (see the sidebar "The OS File: Background Briefing"), OS 1.3 is not something Commodore *had* to do; rather, it reflects Commodore's commitment to continually improve the Amiga.

Fast Start / Fast File

The OS 1.3 release comes in three pieces: Kickstart, Workbench and Extras. Kickstart 1.3 will come in two forms: on disk for Amiga 1000 owners and on a ROM chip for A500 and A2000 owners. Kickstart 1.3 has one feature not found on Kickstart 1.2; it lets you boot with an appropriate hard disk. Appropriate hard disks are those with Amiga-specific boot ROMs. Look for announcements from hardware makers as they update their hard-disk controllers to accommodate the new Kickstart.

Other than the ability to boot from hard disks, Kickstart 1.3 is identical to Kickstart 1.2. It does not fix the few known bugs in Kickstart, thus preserving compatibility with programs that use common work-arounds for the bugs. Amiga 1000 owners will be disappointed to hear that booting from a hard disk with Kickstart 1.3 will still require that you preboot with a Kickstart disk. Kickstart itself cannot be put on a hard disk.

All other enhancements in OS 1.3 are found on the Workbench and Extras disks. The most significant is the new Fast File System for AmigaDOS. Commodore says that the Fast File System will give you up to seven times the data transfer rates achievable under the AmigaDOS file system, with directories running 10 times faster than before. Andy Finkel of Commodore predicts also that the Fast File System will "max out" non-DMA (Direct Memory Access) hard-drive systems. He expects DMA hard-drive systems to be demonstrably superior to non-DMA systems when running under the Fast File System.

The speed of the Fast File System is a result of many factors. It was written in assembly language as opposed to the BCPL (Basic Combined Programming Language) used in the AmigaDOS file system. It uses sophisticated hashing and caching techniques (it even hashes its caches!). It can read in multiple blocks (up to 65,000) with one fetch, making it very fast when loading large programs. All this and more will make living with an Amiga hard-disk system a lot more enjoyable.

As of now, the Fast File System cannot be used with floppy-disk drives; it can be used only by disks that are mounted with the MOUNT command. The Amiga 3.5″ floppy drives are still accessed through the old filing system. Your computer differentiates among disks accessed by the two file systems by an ASCII identification found in the root block of every Amiga disk. Disks accessed by the old file system are identified by the ASCII string DOS0; Fast File disks are identified by the string DOS1. By the time Commodore is ready to commit the Fast File System to ROM, it expects to have the system working with floppy drives.

More Speedups

Workbench 1.3 contains a new floating-point math library. The math library is a set of routines (loaded by application programs

THE OS FILE: BACKGROUND BRIEFING

OPERATING SYSTEMS ARE complex beasts, with many diverse elements. The Amiga Operating System is more complex than most because the Amiga is the most sophisticated personal computer on the market. The most important elements of the Amiga OS are: the Exec, a set of routines that manages tasks and memory and handles communication with external devices; AmigaDOS, which manages files on disk drives; and Intuition, a library of routines used by programmers to create the mouse-driven, windowing interface for the Amiga. The Amiga OS also includes the ROM Kernel routines used by applications programs to access many of the Amiga's unique hardware features, the Workbench desktop interface, and the command-driven CLI interface.



When shipped to dealers in September '85, the Amiga came with Kickstart and Workbench 1.0. OS 1.0 was fairly buggy and, as a result, third-party software developers held back their products until Commodore got version 1.1 into the hands of users. OS 1.1, released in early 1986, corrected most of the bugs in 1.0 and precipitated the first flood of Amiga software releases.

OS 1.1 was not everything that Commodore had promised in an operating system. Conspicuously absent were the Kickstart auto-configuration routines to make expanding the Amiga relatively painless. These routines and more were included in version 1.2 of the operating system, released in the early months of 1987. With OS 1.2, all the basic parts of the Amiga operating system were finally in place. OS 1.2 was followed quickly by another flood of new hardware and software products for the Amiga.

Now, about one year after the release of OS 1.2 and two years after 1.1, Commodore is ready to go with 1.3. Because 1.2 is a stable system, I don't think that OS 1.3 will open the floodgates to a new generation of products as did 1.1 and 1.2. I do think, however, that it will make many Amiga owners work better with their machines.—***BR***

that use floating-point math, if the library is not already in memory) enabling programs to perform math functions not supported in the instruction set of the Amiga's MC68000 microprocessor. Commodore claims the new library can increase the speed of calculation by up to a factor of six.

As important as the speed increase is the ability of the library to detect the presence of an MC68881 math coprocessor in your system, whether it is in-line or in a peripheral slot. When it detects a 68881 chip, the library uses the chip instead of its own software routines for math calculations. Because the 68881 is a hardware device, it performs math functions much faster than any software routine. With this new library, software developers will not have to write two versions of a program—one that uses the software library and another that takes advantage of the 68881. Now, one program will do both.

Another performance advantage of OS 1.3 comes from new and improved printer drivers. Through OS 1.2, Amiga printer drivers have been rightly criticized as being far too slow. The OS 1.3 printer drivers can speed up a graphics dump by a factor of six and perform color correction to make the printed page match your screen more closely. Also, the new printer drivers have a built-in smoothing algorithm that cleans and smooths the appearance of text characters on your output page. The new printer drivers can even print more bit planes than the Amiga can display, allowing you to take advantage of the capabilities of high-end color printers.

OS 1.3 supports many new printers, including the Epson LQ series, the HP DeskJet, the Xerox 4020 and the Calcomp Colormaster. To make room for other improvements to Workbench, many printer drivers are located on the Extras 1.3 disk. You have to move a driver to the Workbench disk before using it.

The last major performance enhancement in OS 1.3 is faster updating of text characters. Commodore licensed Microsmith's FastFonts system and made it available on Workbench 1.3. FastFonts can write characters to the screen up to four times faster than the old text-handling routines. In addition, Workbench now contains three Adobe fonts—Times Roman, Helvetica and Courier—which are supported by Postscript-driven laser printers; they will make the Amiga a more attractive option for desktop publishing.

New Devices And Commands

Amiga OS 1.3 contains three new devices, six new commands and a host of improvements to existing device handlers, commands and tools. The new devices are a recoverable RAM disk, a multiuser capability and a new text-to-speech method.

The recoverable RAM disk protects the contents of a RAM disk when you perform a warm boot. This is especially helpful to programmers who normally work with large RAM disks to speed up the development process. Now, when they encounter a nonrecoverable error that forces them to reboot the system, they will not have to reload their RAM disks. This device is similar to Perry Kivolowitz' popular VD0: device available in the public domain.

The AUX: device turns your Amiga into a multiuser system. Using AUX:, you can hook a computer or dumb terminal to your Amiga serial port and run an Amiga task from the external system. Although the AUX: device lets you run only text-based tasks (anyone seen NAPLPS for the Amiga?), it could be very useful for automated data acquisition and dedicated data entry.

The SPEAK: device allows just about any program to talk. Unlike using the SAY command, which works only on input text or a text file, you can redirect the output of programs to the SPEAK: device, just as you would use the PRT: device or the CON: device. In addition, the SPEAK: device uses better logic than the SAY command to delimit sentences, allowing for more natural speech.

New commands on Workbench 1.3 integrate the Workbench and CLI environments more fully. MORE lets Workbench users read the contents of text files. CMD redirects printer commands to a disk file, allowing you to print to disk. SAVESCREEN complements the current GRAPHICDUMP command by saving what's on your monitor to an IFF picture file. XICON lets you execute batch files from Workbench. Formerly, batch files could be run only from the CLI. Finally, SETFONT lets you set the default system font, just in case you get tired of Topaz.

The last new command is available only through the CLI. Called PIPE, it lets you redirect the output of one program directly into another. It is comparable to pipes on the Unix operating system.

If It Ain't New, It Must Be Improved

Commodore has improved the console device handler on Workbench 1.3 so that it can enhance programs that use the console device, including the CLI. Among the enhancements are command history, command line editing and a small shell that allows you to use aliases and resident commands and to extract the current directory in prompts and batch files.

Other improvements for AmigaDOS users include a default startup file for the CLI, an improved RUN command to launch independent tasks that do not lock the original CLI, and more commands that now return error codes. Many other CLI commands sport slight improvements that will increase performance without sacrificing compatibility. Note that OS 1.3 does not incorporate the public-domain AmigaDOS Replacement Project.

Workbench tools have also been improved. Notepad can now handle more fonts, while Preferences lets you set more printer options. EMACS, the text editor on the Extras disk, has many new options. Improvements to the Diskfont library make it easy to add fonts to your system, while improvements to the Icon library allow you to display more file information from the Workbench menu.

That's A Wrap

Kickstart and Workbench 1.3 make your Amiga both faster and easier to use. OS 1.3 also belies Commodore's reputation as a company that doesn't listen to its customers; someone must have been listening to have hit so many nails so squarely on the head.

Future issues of *AmigaWorld* will look in greater depth at OS 1.3, filling you in on how to use the new features and commands. For now, however, be assured that a 1.3 upgrade is the most important thing you can get for your Amiga this year.

Product Information

OS 1.3 upgrade
Commodore Business Machines
1200 Wilson Drive
West Chester, PA 19380
215/431-9100
Price not available ■


PROFESSIONAL
PAGE

THE DESKTOP HEAVYWEIGHT

LIKE 21-YEAR-OLD MIKE TYSON, GOLD DISK'S PROFESSIONAL PAGE HAS QUICKLY TOPPED THE HEAVYWEIGHT DIVISION OF SERIOUS DESKTOP-PUBLISHING PROGRAMS FOR THE AMIGA.

EDITOR'S NOTE: In a sidebar to our recent roundup of desktop-publishing programs for the Amiga (see "To Have & Have Not," p. 26, in the Jan. '88 issue of AmigaWorld*), we alerted readers to the fact that a new generation of such programs—potentially offering a great deal more than the current crop—was moving up rapidly on the horizon. One of the promising newcomers mentioned, Professional Page, has now come to the fore—and is the subject of this* AW *feature review.*

THINK OF DESKTOP-PUBLISHING software as a tool for the integration of text and graphics files. It sucks these files in, lets you determine their placement on the page, edit them if necessary, add refinements like ruling lines and then dump them to a laser printer or typesetter. Such Macintosh and IBM PC software has been available for several years, its sophistication increasing exponentially.

Amiga users, on the other hand, have had to make do with a narrow selection of insubstantial programs that failed to tap the Amiga's power and provided but marginal typographic and graphic control over the printed page. Worse, they were universally clumsy in their handling of PostScript, the industry-standard page-description language that drives such printers as the Apple LaserWriter and high-resolution Linotronic typesetters.

The best of this lot remains Gold Disk's PageSetter, which provides a fair amount of control over your pages when combined with a separate utility for PostScript printing. Not long ago, however, Gold Disk released a new product that, while sharing the PageSetter heritage, has leapfrogged several generations ahead of any page-makeup program for the Amiga. Professional Page not only decimates its Amiga competition, but it can also hold its head up in the company of such IBM and Macintosh heavy hitters as Ventura Publisher and PageMaker. It accomplishes this by adopting a flexible conceptual structure, adding weighty type- and graphics-handling features and combining it all smoothly into a product that of necessity makes some assumptions about the system it will be running on.

HEAVYWEIGHT HARDWARE REQUIREMENTS

Professional Page is demanding. It needs a megabyte of memory just to load, and for long or graphics- ►

by CHRIS DICKMAN

ILLUSTRATED BY ROB COLVIN

intensive documents, you should expect to double that. Because it can multitask, you will need even more memory to run it at the same time as complementary programs like DeluxePaint II or WordPerfect. If you do run low on memory, a warning appears and graphics are displayed from then on in outline form only. But with Amiga memory expansion now so affordable, why wait for this to happen?

Hard disks are like freeways—the number of bytes (and cars) soon multiplies to fill new ones. All desktop-publishing programs need hard disks to perform serious work, so it's no knock on Professional Page that it too will drive floppy users frantic with disk swaps. In addition to the program disk, a second disk contains fonts and utilities, which Professional Page expects to find during loading, printing and document creation. Text, graphics and document files can be counted on to mushroom to frightening proportions, necessitating at least a 20-megabyte hard disk.

DESPITE ITS FORMIDABLE HARDWARE NEEDS AND ITS IMPRESSIVE ABILITIES, PROFESSIONAL PAGE IS NOT A HARD PROGRAM TO LEARN AND USE.

Do you like wearing sunglasses? Indoors, in the middle of the night? I've been doing that for the last few weeks while working with Professional Page and I don't recommend it. It's not that I have a weird taste in optics, but rather I'm responding to the fact that Professional Page runs in high-resolution interlaced mode, which causes the screen to flicker madly. The resulting resolution of 640 × 400 pixels produces an acceptably crisp display, unlike the normal Workbench mode. So how do you live with the interlaced mode?

Why not consider a move to Europe? Our friends across the Atlantic will be delighted to hear that Professional Page supports Amigas fitted with a PAL chip, thereby providing the superior European video standard of 640 × 525 pixels. A more realistic, albeit short-term, solution is to hang any one of a number of available screen overlays in front of a standard Amiga monitor, which like my polarized sunglasses will reduce flicker somewhat. A better solution is to use a long-persistence monitor, which will essentially eliminate flicker—as well as any surplus funds you may have kicking around. Other options include multi-sync monitors with special RGB adapters or monochrome TTL monitors, which are available from a number of vendors. Apparently, Commodore has finally figured out that there is a desktop-publishing market, and it will soon be supplying a very high-resolution monochrome monitor. But as Professional Page supports color so well, this would be a definite step backward.

The final requirement to run Professional Page will cost more than the program and your Amiga combined. Professional Page will print only on a PostScript printer, either of the laser or typesetting variety. This is as it should be, as the program's sophisticated type- and graphics-manipulation abilities could not have been realized with dot-matrix or bitmap-laser printers. *(Editor's Note: For those who simply cannot afford a PostScript-driven printer, there is some promised relief. The next release of Professional Page—1.1—will support dot-matrix and Hewlett-Packard laser printers. Professional Page 1.1 was scheduled for release about the time this article will appear in print; it is expected to cost $395—the same as 1.0—and it will be available free on a replacement basis to registered 1.0 owners.)*

Despite its formidable hardware needs and its impressive abilities, Professional Page is not a particularly hard program to learn and use, owing in large part to the conceptual glue that binds its many diverse features together. Gold Disk has resisted the temptation to reinvent the wheel, going instead with a variation of the approach to integrating text and graphics employed by most desktop-publishing software. Professional Page thus attempts to display on screen as accurately as possible a representation of what your final printed document will look like, one page at a time (the popular WYSIWYG, or "what-you-see-is-what-you-get," approach). To this end it does a credible job, despite the use of rather clunky screen fonts. As well as a representation of a page, to one side there's an "artboard" where you can temporarily store text and graphics. Five page magnifications are available to zoom in or pull back from a page, and each page is surrounded on two sides by a ruler with adjustable increments. Page creation is accomplished by a smoothly integrated menu system and a series of tool icons in a bar on the right of the screen.

"Boxing" Basics

The basic building block of a Professional Page document is the box, which you draw on blank pages and then fill with text and graphics that can be either imported or created within Professional Page. At any one time there is only one "active" box on a page, and it is surrounded with a solid gray line to distinguish it from other boxes, which are enclosed by dotted gray lines. As expected, you can perform the usual resizing, moving and copying of a box by using its eight "handles," but more interesting actions are also available. Attributes of each box can be defined with a requester both in terms of the box itself and by how it interacts with other boxes. For example, if a box containing a graphic is defined as "impermeable," dragging it on top of a box containing text will cause the text to wrap automatically around the graphic box. To provide some breathing space between the text and graphic, the inner margins of the graphic box could then be set to any value desired.

More innovative is the ability to combine boxes

into a "group" and work with them en masse. Selecting the Make Group tool and dragging an outline around a number of boxes creates a group, which you can then move, copy or delete at one crack. This is handy for a large number of graphic arts operations and indispensable for forms creation. Professional Page may be unique in its ability to align or center grouped boxes in relation to the active box.

Some box functions depend on what resides inside the particular box. Professional Page provides six tools for drawing object-oriented shapes directly on the page. You can resize these as you please and they will still print at the full resolution of the output device. Boxes are created automatically for these shapes as they are drawn, but it is possible to merge a number of these into one box, thereby allowing you to treat them as a single entity when resizing. Long familiar to CAD users, this is a welcome feature in a desktop-publishing program.

Using the box handles, you can crop bitmap graphics and then move them around behind the reduced window for positioning. Professional Page claims to be able to import any IFF-compatible bitmap graphic up to 1024 × 1024 pixels, and I had no trouble with both DeluxePaint II and public-domain HAM images. The only limitation seems to be available memory. Color bitmap graphics display in eight shades of gray. The only fiddling necessary with this type of graphic is an adjustment of its aspect ratio, which, fortunately, is easily accomplished, as my graphics tended to print with wrong proportions. An interesting use of bitmap graphics is as a template, over which you can place lines and fills with the drawing tools. One of these, the Bezier curve, is particularly appropriate for this work, and with a little practice you can produce logos and illustrations that are free of the bitmap jaggy blues. This is an aspect of the program that Gold Disk should develop even more in future versions. Professional Page also handles structured graphics created with the Aegis Draw Plus CAD program, and these display in up to eight colors. A feature lacking here is the ability to break these graphics up into their component parts for further modification.

PROFESSIONAL PAGE GIVES YOU ACCESS TO POSTSCRIPT WITHOUT FORCING YOU TO WADE THROUGH ENDLESS MENUS.

Score It A TKO: A Textual Knockout

The primary component of most documents is text, and Professional Page's use of boxes is very well conceived in this regard. Let's say you are creating a two-column newsletter. Having created the text with a word processor, you then define the page size, margins, number of columns and gutter width (inter-column spacing). A blank page is now displayed, along with non-printing dotted column guides. You create boxes to contain the text by drawing manually over the column guides or by using the cunning "autobox" feature, which painlessly creates column-sized boxes. The text file is then loaded from disk and pasted into the first column. A small inverted "L" at the bottom of the column is the tip-off that more text is available in Professional Page's text buffer. To continue pasting text you can join two columns by selecting the Link icon and clicking on the next column, which fills with more text from the disk file. Use the same procedure to continue placing text from page to page throughout a document. As linked boxes are resized, text flows from one to the other automatically, with boxes being deleted or unlinked from others as desired.

You can edit imported text or create new text for such page elements as headers right on the screen in an empty box. The Professional Page text editor works much like similar efforts but adds a few welcome twists. You cut and paste text by highlighting it first with the mouse, but a novel extension of this standard approach is the ability to write a highlighted text block to a file. Of more immediate use is a complete search-and-replace function, something far from common in desktop-publishing editors. It can be used not only for text but also for locating and changing such attributes as bolding, underlining, type face, size, justification, kerning and tracking. These and several dozen more can be entered in your text with a word processor prior to loading or assigned by highlighting text and using Professional Page's menus. In either case, codes do not display on the screen, so the ability to locate and change them quickly is welcome. This is useful for changing the type-size or page-style elements that repeat over several pages.

Before exploring the intricacies of Professional Page's typographic capabilities, I should point out a number of mechanisms available to streamline page production. Instead of creating each page from scratch, you can use template pages, which are collections of boxes that are either blank or contain headers, ruling lines or other elements appearing on pages throughout the document. You can define both left and right template pages and use the resulting template file as a base on which to build future publications. You can save single pages to insert later into a document as needed. The use of templates greatly cuts down on creating pages from scratch—my only complaint is that no sample templates are either included with Professional Page or available at extra cost.

Typographical Power: The PostScript Punch

In terms of typography, Professional Page is impressive. Unlike many similar programs, it provides deep access to the powers of PostScript while not forcing you to wade through endless menus. With a text file ►

WYSIWYG

THE BEST DESKTOP-PUBLISHING programs exhibit a property called WYSIWYG (pronounced wizzy-wig), which stands for What You See Is What You Get. Not yet found in any dictionary, WYSIWYG simply means that the page your laser printer produces will closely resemble the page you layed out on your computer screen. You don't have to guess or to visualize what your printed output will look like; you just have to look at the screen.

To let you judge for yourself the WYSIWYG capabilities of Professional Page, an *AmigaWorld* editor created a page, used Grabbit from Discovery Software to save two pictures of the screen display as picture files and then printed the page using an Apple LaserWriter. Later, the pictures were transferred from disk to film using the Imprint/Polaroid Palette system. The pictures of the screen and the LaserWriter output are reproduced below.



AmigaWorld *Times*

Senior Editor Implicated in Missing Commas Scam

Wright, Ryan, Gefvert and Barrett Demand Inquiry, Laflamme Silent

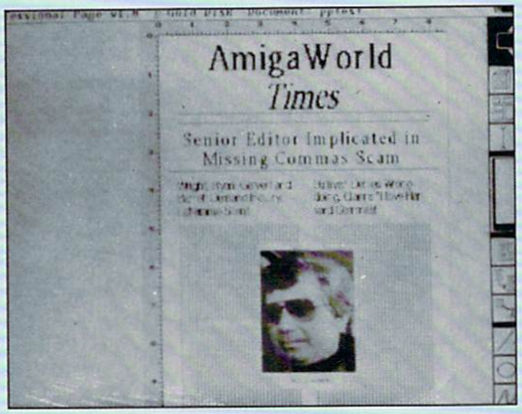
PETERBOROUGH, NH. Tired of seeing their peerless prose made incomprehensible by missing Harvard commas, four editors of AmigaWorld magazine have filed charges against Senior Editor Daniel Sullivan in Peterborough District Court. Citing Sullivan's "willful disregard for the AmigaWorld Style Guide", the plaintiffs seek the restitution of thousands of missing commas and a permanant injunction to keep Sullivan's red pencil in check.

The plaintiffs are Editor in Chief Guy Wright, Technical Editor Bob Ryan, Senior Editor Linda Barrett and Review Editor Barbara Gefvert. Conspicuous in its absence from the list of plaintiffs was the name of Managing Editor Shawn Laflamme. Like Sullivan, Laflamme is a member of the notorious Gang of Two and is known to sympathize with Sullivan's campaign to eliminate the Harvard comma from the pages of AmigaWorld. At this time, the plaintiffs have not included Laflamme in the indictment although they suspect him of aiding Sullivan. "We've got serious doubts about Shawn", stated Senior Editor Barrett, "we simply haven't

Dan Sullivan

Sullivan Denies Wrongdoing, Claims "I love Harvard Commas!"

WEST PETERBOROUGH, NH. AmigaWorld Senior Editor Dan Sullivan reacted petulently today to charges that he has been deleting Harvard commas from AmigaWorld galleys. Sullivan dismissed the charges against him, saying they were motivated not by a love of language on the part of the plaintiffs, but rather by envy. "None of those bozos can edit his or her way out of a paper bag", said Sullivan, "and so they occupy their time bothering the only editor on the staff worthy of the title." Sullivan directed much of his ire at Technical Editor Bob Ryan. "Ever since he lost the fight to have database considered two words, he's been looking for trouble", stated Sullivan. Informed of Sullivan's charge that the indictment was motivated by envy and revenge, Ryan shouted hysterically "My dog Mae knows more about the language than Dan Sullivan, and she knows not to poop in the house, too". Working himself into a frenzy, Ryan continued "Anyone who questions the importance of Harvard commas has lost touch with reality!" Ryan then started ranting "Data base is two words!!!" before





Three views of the same Professional Page document. Top photo: the entire page with the program's 50% magnification option. Bottom photo: the same page at 100% magnification. The page at left is the actual output of an Apple LaserWriter. Note that the photos and the output page are not reproduced here at the same scale.

loaded and displayed on the screen, your next step is to go through the document—highlighting text and applying formatting attributes. To change type style, for example, you highlight the text and use the Type menu to select one of eighteen supported fonts. These include those resident on most PostScript printers, with the curious exception of Zapf Dingbats (without which life is unthinkable!). You can add new fonts to the system by copying their font metric files to the fonts directory on the utilities disk. Professional Page assumes these fonts are available to the printer—unlike some programs, it will not download fonts to the printer as needed.

Professional Page can generate type up to 127 points in one-point increments and handle up to (shudder) 127 faces in a single document. In addition to the expected bold and underline attributes, Professional Page puts at your disposal the useful ability to create type in outline form. Kerning (adjusting the space between selected letter pairs), unfortunately, is either on or off—denying you the ability to set a type-size threshold. Tracking (inter-character spacing), on the other hand, is handled elegantly: After highlighting the desired text, you can either fill out a requester by adding or subtracting space in units of 1/100 of an em or simply tap on the cursor keys to accomplish the same effect. Smooth.

Line spacing is handled in a similarly effortless fashion. You can set it as a fixed unit in points, as relative to type size or in terms of added leading (interline spacing). The same is true with text baselines, which can be shifted up or down in half-point increments. Text is easily aligned left, right, centered or justified. Hyphenation is accomplished through the use of an algorithm and a user-defined exception dictionary, if desired. An unusual touch here is the ability to set separately the desired number of characters before and after hyphenation. Less desirable is the tendency to hyphenate too many lines in a row—I counted five in one instance.

THE PROGRAM IS FAST, ITS FEATURES WELL INTEGRATED AND GOLD DISK APPEARS COMMITTED TO FURTHER REFINEMENT OF THE PRODUCT.

Suffice it to say that Professional Page can handle typographically demanding documents. Much of its power comes from its low-level access to PostScript. You can define such parameters as the paper width of PostScript roll printers and output pages in negative and flipped form. All of this is greatly enhanced by the program's ability to alter output on a page-by-page basis. Thus you can rotate separately each page through any angle and scale it on both the x and y axes. You can also print document pages in miniature, several to a page, for thumbnail creation. Maximum document page size is 17 inches × 17 inches.

Color: Separating The Champ From The Contenders

Much of the excitement surrounding Professional Page involves the program's color support, specifically its ability to manipulate color IFF images and to separate them for full four-color process printing. Realizing this potential, however, depends on Gold Disk's release of its optional (and long-delayed) Professional Color Separator, without which any IFF graphic imported into Professional Page prints in shades of gray. *(Editor's Note: As mentioned in an earlier note, the release of Professional Page 1.1 was expected by the time this article appears in print. Gold Disk promises that the new release will contain the color separator as part of the package—at no additional cost.)*

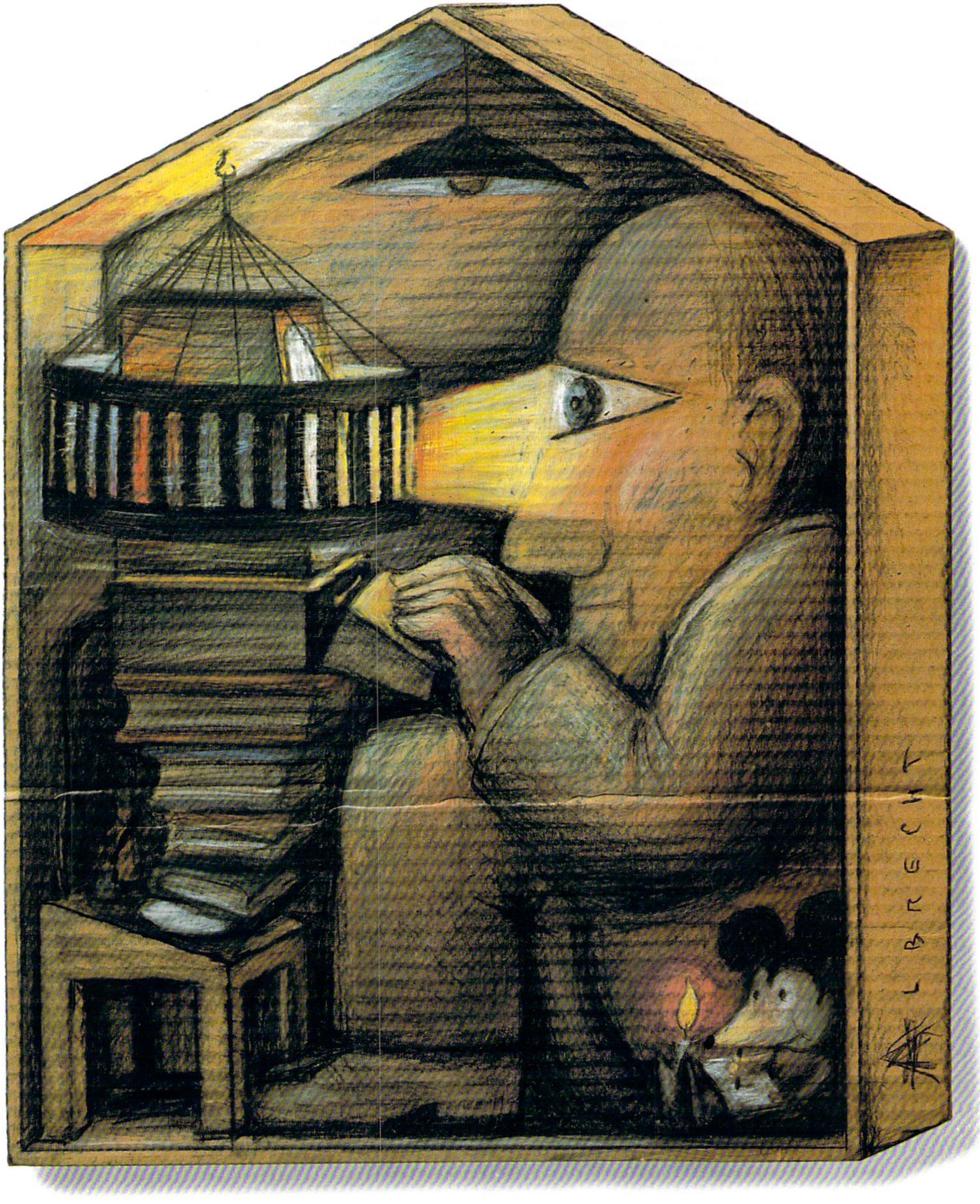
Until then, it's tantalizing to be able to assign any of the Amiga's 4096 colors to text or graphics created with the program's drawing tools. Anticipating using the program in conjunction with the separator, consider that Professional Page lets you define colors with RGB sliders that simultaneously show the Yellow, Magenta and Cyan color-separation equivalents in percentages. You can also define colors that can be used not for separations but for spot color in a two- or three-color run. Think of defining entire collections of colors and saving them to disk for reuse. Heady stuff, this, and an indication that Professional Page is poised to take us to entirely new realms in desktop publishing.

Meanwhile, we are left with a flexible package capable of producing a wide variety of publications on PostScript printers. The program is fast, its features well integrated and Gold Disk appears committed to further refinement of the product. The program should prove relatively easy to learn—despite the lack of on-line help—thanks to an excellent manual. It's an impressive product. Now if I can just save up for that multi-sync monitor. . . .

Product Information

Professional Page 1.0
Gold Disk Inc.
PO Box 789
Streetsville
Ontario, Canada
L5M 2C2
416/828-0913
$395
1 megabyte required; long-persistence monitor and hard disk recommended. ■

Chris Dickman is Director of Desktop Documentation Services, a Toronto-based firm providing writing and design services using desktop-publishing technology. Write to him c/o AmigaWorld, *Editorial Dept., 80 Elm St., Peterborough, NH 03458.*



ILLUSTRATED BY MACIEK ALBRECHT

MOVING IN A NEW DIMENSION

Byte by Byte's highly acclaimed Sculpt 3-D is now a full-fledged animation package with the addition of Animate 3-D.

ALTHOUGH SCULPT 3-D (see "Depth-Defying Graphics," p. 34, in the January '88 issue of *AmigaWorld*) provided a complete three-dimensional object-creation and drawing system, it lacked an easy way to animate the images. Unlike Eric Graham's famous juggler that inspired the program, user-created robots were frozen in mid-throw. Animate 3-D melts their constraints, giving Sculpt owners everything that they originally expected from the program, and more—animation capabilities normally found only on dedicated graphics workstations.

The Animate 3-D package is not a stand-alone program, but an upgrade kit to Sculpt 3-D (available separately for $99.95), containing only a merge program. Move a copy of Sculpt 3-D onto the Animate disk and run Merge 3-D to modify it. When the smoke clears, Merge and Sculpt will be gone, replaced by Sculpt Animate 3-D, which is 350K long and requires one megabyte to run. As with any successful corporate merger, the result is not one large program dominating another, but a smooth combination with the two halves complementing one another. The new animation features enhance the power of the object-creation capabilities, while some of Sculpt's existing features take on a new significance when viewed as animation tools. To make adapting to these new features easier, the new program retains Sculpt's familiar user interface. Almost all actions are mouse and menu driven.

Smooth Curves Ahead

One enhancement is Sculpt Animate's splines. While Sculpt's curve tool connects a series of points, the resulting "curve" is actually composed of straight-line segments. Sculpt Animate's spline feature lets you soften this angular figure into a true smooth curve. To change a curve into a spline, you must first designate some vertices as fixed knots. Knots remain in the same place, while the other vertices shift to smooth the curve. If you disagree with the program's idea of the curve, you can alter its shape either by moving a knot, or with Modify Knot, which changes the direction and degree of curvature on either side of the knot. Working in conjunction with Sculpt's Tri-View windows, the Modify Knot requester adds a yellow arrow to indicate the selected knot in the wire-frame drawing. You can manipulate the shape of the curve using Sculpt's rotate gadgets, which normally move a group of points, or introduce a bend or angle into an otherwise smooth curve.

Besides fine-tuning individual vertices, you can now assign a name to the group of vertices that make up a figure, and select the vertices as a whole with the object's name. This makes it easy to select, load and save an entire object, as well as manipulate it with the grabber, the rotate gadgets or the expansion tool.

The Leg Bone's Connected To The Hip Bone

Expanding on its naming ability, Sculpt Animate supports object hierarchies. You can assign names not only to an object, but also to smaller portions of the same structure. For example, you could create a robot and call the entire figure Robby. Robby could, in turn, be comprised of smaller discrete pieces, such as Head, Body, Leftleg, Rightleg, Leftarm and Right- ►

By Sheldon Leemon

Sculpt Animate presents a well-integrated set of tools for object creation, scene construction and animation.

arm. Rightarm then could be broken down further into Upperarm, Forearm and Hand. The subobjects belong to the larger structures that contain them; if you select Leftarm, you automatically also select Upperarm, Forearm and Hand. The relationship of parent (those higher in the chain) and child (subordinate) objects is similar to that of the root directory and subdirectories in the AmigaDOS hierarchical file system. You can build an object hierarchy 16 generations deep, with up to 255 offspring per member.

Because complex objects rarely move as a monolithic whole, hierarchies are vital for animation. Naming specific parts of a robot's body makes it easy to move just an arm or a leg. You can also create complex, layered motions, like those in a walking figure. The upper and lower legs move separately while bending at the knee, and the arms swing back and forth, at the same time that the entire body moves.

To define your robot's motion rather than its form, you place paths (curves or splines) in an object hierarchy. To change a curve into a path, you must indicate the starting position, and, if the curve is a loop, the direction of travel. Placing a path name in an object hierarchy attaches the succeeding objects to that path. Using a technique called global animation, you can move Robby around the path. The part of the object that follows the path is known as the local origin (which often coincides with the center of gravity). You may set a separate local origin for each named object and path. Paths that lie beneath other paths in the hierarchy follow the motion of the higher-level paths, at the same time that their subobjects are following their motion, as a moon orbits a planet that in turn orbits the Sun.

Object vertices and paths are not the only elements that can be placed in the hierarchy. You can attatch lamps (light sources), the observer (camera) and the target (the animation's focal point) to paths. With this flexibility, you can create animations not only by moving objects, but also by changing the position of the observer who views them, the direction in which that observer is looking or the lighting used to illuminate the scene.

TAKE A HIKE

To get your robot on the road and all his hierarchies in motion, you need the Take commands. The heart of Sculpt Animate's new features, Take brings together all of the elements needed to create an animation. The Take screen offers two basic animation modes, Global and Key Frame, which you can also combine in a single series of images. To create a global animation, you construct a single global scene that contains an object hierarchy, including the paths that the robot will follow. Next, designate Robby's orientation as he travels around the path. The Modify Tumble requester allows you to rotate the object around any of three axes at any point on the path, using the rotate gadgets to move axis lines within the Tri-View window. This lets you change, for example, the direction in which the robot is heading when it turns. If you did not change the orientation, Robby could be attached to a circular path, but always point North, regardless of the direction he moves. You need not specify, however, the orientation at every point on the path. The program will interpolate the orientation of the object at points between those specified.

The rest of the work is performed within the Modify Take requester, which lets you specify the number of image frames to be generated, and draw the frames. Starting with the setup you created for your global scene, Sculpt Animate takes over the job of moving the objects along their designated paths in all of the remaining scenes. Because rendering a series of images takes a long time, be very sure that the scene is correct before you start. To double check, select the Take requester's Preview button, which draws all of the frames in wire-frame mode and then animates them. The procedure takes only a few minutes, and gives a fairly accurate rendition of the finished animation. You can also use Render Frame to draw a representative frame or two from the series. Rather than duplicate work, Sculpt Animate saves these frames to disk and uses them when it's time to draw the whole series.

In Key Frame mode, you position the objects manually for a number of pivotal frames; the program interpolates the frames that fall in between. In a typical session, you create and save a scene as the first key frame. Then, you alter the scene a little by moving objects, moving the observer, changing the lens or tilting the camera, and save that as the next key frame. When the key scenes are complete, you use the Take requester to render all of the images, including the ones that appear between the key frames. Sculpt Animate uses an interpolation process known as Tweening to derive the intermediate frames. Tweening can be used to figure out not only an object's position as it moves from one key frame to the next, but also its shape. In one of the sample takes included with the program, a human head appears in the first key frame and changes to a sphere in the last key frame, as a result of Sculpt's Do Be Sphere command. When the take is rendered, the intervening frames are drawn so that it appears that the head is inflated like a beach ball. You can use the grabber and magnet tools to distort an object any

Byte by Byte offers a version of Sculpt Animate that supports the 68020 processor and 68881 math coprocessor.

way that you want to, so long as the number of vertices remains the same.

In addition to the main animation modes, Sculpt Animate provides a few enhancements. Object Cycling, for global animations, allows you to specify that a particular named object will be rendered only in certain frames. This lets you create objects having a different appearance in each frame. You can incorporate IFF pictures into the animation, either as foreground or background. As a background, the IFF picture is first loaded into each frame—in place of the sky, for example—and the animation rendered on top of it. When used as a foreground, the image is brought in on top of each frame of the animation, covering it, except in those places where the background color (color register 0, or black in the case of HAM images) is used. To be true to nature (where objects moving more quickly than the eye can follow appear to be somewhat blurred), Sculpt Animate offers motion blurring. This final enhancement simulates the blurring effect, but at the cost of additional rendering time.

Jammed In RAM

When all of the images for an animation are complete, Sculpt Animate will compress them automatically into a RAM animation file, which contains information only for the parts of the picture that change from frame to frame. For realistic animation, playback speeds reach up to 30 frames per second. You can specify that the action be shown once or several times. Repeating animations may start over from the beginning once they reach the end, or run backwards. Because of the way that RAM animation files are created, you can even build an animation file from images generated by another program. You could compress a properly named series of painted images, for example, into a Sculpt Animate movie file. From RAM, it's a quick step to videotape. Beware, you may need a hard drive to store your work, as even a moderately complex animation file may be too large to fit on a floppy. For those with access to single-frame video recorders and frame buffers, Sculpt Animate provides the proper interface hooks.

Considering the complex nature of 3-D animation, Sculpt Animate presents a remarkably well-integrated set of tools for object creation, scene construction and animation rendering. Not all of the operations are implemented in an ideal manner, of course. You cannot, for example, directly insert a new object at the top of a hierarchy, and changing an object's color is cumbersome. The program's enormous number of features breeds a bewildering array of menu items. Some menus have as many as twelve entries, each of which may have a dozen suboptions.

Although the documentation for the program is well-written and informative, it is not exactly light reading. A lot of information is covered in a relatively short space, and you may have to read it more than once in order to understand everything. You should also reread Sculpt's documentation; many of the program's original features take on new meaning when viewed in the context of animation. Carefully study Byte by Byte's sample animations illustrating global animation, key-frame animation and object cycling. Each is accompanied by a text file with step-by-step explanations. Because of the relatively low price of the Sculpt Animate package (around $250 for both), Byte by Byte does not offer free technical support. If you call the support line, help costs $75 per hour, billable in ten-minute increments.

Time is one thing you will need plenty of for Sculpt Animate. To design a single realistic object you have to enter hundreds, or even thousands of points. Drawing time for a complex frame of animation can run into hours, sometimes days; a whole series could take weeks. Fortunately, there are shortcuts. Disks containing pre-constructed three-dimensional objects are already appearing (Syndesis offers one, with more to follow). For the serious animator, Byte by Byte offers a version of Sculpt Animate that supports the 68020 processor and 68881 math co-processor. On an Amiga 2000 equipped with, say, a 68020 CPU board from CSA (see "Turbocharging Your Amiga 2000," p. 26, in the February '88 issue of *AmigaWorld*), drawing speeds will increase up to six times. When you add a 32-bit RAM board, the speed can jump to 10 or 20 times as fast. Although such a solution isn't cheap, it may make the program fast enough to be of value in commercial animation settings. With or without the extra hardware, Sculpt Animate 3-D is an excellent way to set your visions in motion.

Product Information

Animate 3-D
Byte by Byte
Arboretum Plaza II
9442 Capitol of Texas Highway N.
Suite 150
Austin, TX 78759
512/343-4357
$149.95 (Sculpt 3-D: $99.95)
One megabyte required. ■

Sheldon Leemon is the author of Inside Amiga Graphics *and other books, and he is a frequent contributor to many computer publications. Write to him c/o* AmigaWorld, *Editorial Dept., 80 Elm St., Peterborough, NH 03458.*



THE INVISIBLE HAND

by TED SALAMONE

USING WORDPERFECT'S MACRO capabilities may make you feel like the master of a marionette show. With a few deft moves of his unseen hand above the stage, he manipulates the invisible strings that produce dozens of intricate movements by the wooden puppets. Macros are akin to those invisible strings—and with a knowledge of WordPerfect's macro functions, you can perform a multitude of difficult, time-consuming operations with just a few easy keystrokes. Macros (microcomputer automated command, relative order) are, in fact, strings—strings of commands that record, save and play back the keystrokes and mouse clicks used to perform almost any operation a program is capable of, so you can execute repetitive, multi-command tasks (set page formats, set up print parameters, search and replace, perform mathematical operations, define columns, add text) by pressing as few as two keys!

WORDPERFECT'S POWERFUL MACRO FEATURES LET YOU PULL ALL KINDS OF STRINGS.

Creating Macros—The WordPerfect Way

WordPerfect chose the best method for creating macros—recording. Just activate the record macro command (CTRL-F10, or highlight Macros and Define in the Special menu) and run through the operation as you normally would. Every stroke and click is captured in memory. Pressing CTRL-F10 again saves the file. (See Example 1 in the sidebar, "Macro Solutions," accompanying this article.) To prevent a lot of frustration, you should write the macro keystrokes and mouse clicks on paper before defining them to the application. If you miss just one entry, or enter an incorrect command, you must redo the entire macro from scratch.

By naming macros with a degree of intelligence, you will be able to recall them easily when needed. For instance, SEARCHF could identify a forward search while the keystroke combo of Amiga-P cries out for printer access. Full device pathnames can also be included, such as DF1:SEARCHF. Named macro files are appended with .MAC; for example, a file named Search would be saved Search.MAC. Be careful, names are not case sensitive; Search.MAC is not differentiated from SEARCH.MAC. However, macros named with keystroke combinations are differ- ►

PAINTING BY PAUL MOCK

ent; {WPL}_.AMGP identifies an Amiga-P macro.

To use a macro, press ALT-F10, or select Macros and Invoke, and type the name of the macro desired. If the macro was identified by an Amiga key/alpha key combination, press the same two keys to invoke it. Temporary macros that are not saved to disk can be retained in memory by pressing Return when prompted for the macro name. Recall them in the same manner.

If you can't stand even one keystroke, you can invoke macros automatically as WordPerfect boots from the Workbench. From the CLI add WP-m *macroname* to your startup-sequence to initiate it when booting.

For more complicated tasks, you can chain or link macros. For instance, you could define a search-and-replace routine and, within it, a spell-checking macro. The spelling macro will not run during the search-and-replace macro's definition process, only during the main macro's invocation. (See Example 5 in the sidebar.) Of course, you can link more than two macros—just make sure you keep track of what each is doing and their interrelationships. Once again, pre-planning on paper helps immensely.

This Pup Chases Its Tail

Besides sequential chaining, a macro can be made to repeat by calling itself as the final command. The entire sequence is repeated until the condition driving the macro (such as finding a particular word or phrase) is no longer true. Similar to a programmer's GOSUB command, this feature behaves like a puppy chasing its own tail. (See Example 4 in the sidebar.)

A special form of chained macros, conditional macros, react differently based upon the circumstances encountered in a document. One macro identifies a course of action if a condition (such as finding a word or phrase) is met; another macro details an alternate course if the condition is not met. WordPerfect's convention for defining conditional macros is to first identify the "Not Found," or negative aspect of the condition, then the "Found," or positive. The format may seem awkward, even backwards, but, once you examine the sequence of events within a conditional macro, it makes sense. A macro runs from beginning to end. A conditional macro runs through the same top-down sequence until the positive condition is no longer met, then performs the Not Found task.

FOR MORE COMPLICATED TASKS, YOU CAN CHAIN TWO OR MORE MACROS.

To prevent unnecessary execution of commands, once the positive condition is met (at the end of the macro), the chain loops back to the beginning of the macro to perform the Not Found command. (See Example 6 in the sidebar.) A repeating conditional chain is linked to itself so it repeats until the condition is not met; then a "Not" macro takes over. These, and the other compound macros, require serious pre-definition design and engineering. Take the time to lay it out first, then define; you'll be better off.

Never Fear, ESC Is Here

Normally macros operate "invisibly"; they do not display the keystrokes as they are executed. You can halt this ninja-like activity by inserting a pause in the macro definition. Simultaneously press CTRL-ESC and enter a delay value from 1 to 65535, which translate to fiftieths of a second. (See Example 2 in the sidebar.) While a value of 1 is sufficient for WordPerfect to display the commands yet proceed at top speed, higher values slow down the playback. Pressing SHIFT-ESC causes the macro to pause and wait for direct text entry from the keyboard, allowing you to introduce variables into a pre-programmed process. (See Example 4 in the sidebar.) Now a search macro can be generic; users can fill in the desired characters in the middle of the macro or enter specific information into a faceless form letter. The direct entry feature is a standout. To automatically run a macro several times in a row, press ESC before invoking the macro to call up the Repeat requester. Enter the number of cycles desired and let it run.

To stop a macro in mid-stride, just press F1, the universal WP cancel command. Pressing F1 will not normally damage the macro file or the document; but you should always be careful when a macro writes to a disk. Anything can happen, and it is possible to accidentally erase a document file.

Full instructions, in a tutorial format, are included in the manual's Learning section with examples corresponding to the sample files on the program disks. For the most part the tutorials are very good, although there are some confusing spots and at least one slight inaccuracy. (Page 190 states that Amiga/alpha key macros are named with a .MAC suffix. This is not true.) Read them twice and you'll have no problems. Additional, more succinct information can be found in the Reference and Installation sections. The Installation section is the ►

MACRO SOLUTIONS

TO HELP YOU get started designing, below are descriptions of several macros, along with a listing of the commands. Use these ideas, variations of them, or just the concepts to customize your own documents. Remember to work with file copies when defining and testing macros, for safety's sake.

EXAMPLE 1

FORMAT1

A simple macro that operates invisibly, sets up my standard page format.

CTRL-F10
type **FORMAT1** *to name macro,*
select **accept**
SHIFT-F8
select **4** *enter* **2** *select* **accept**
SHIFT-F8
select **3** *set numbers desired,*
select **accept**
ALT-F8
select in order **1 7**
4 1
5 accept
A yes 0
CTRL-F8
select in order **1 accept no accept**
cancel
2 accept
3 *toggle to right justification* **0**
CTRL-F10

First, line spacing is set to double spacing (SHIFT-F8) and the margins are set for left 10 and right 75 (SHIFT-F8). Page number position is set to the bottom center of every page (ALT-F8), letter size paper is selected with a top margin of 12 half lines (ALT-F8). The widow/orphan command is activated (ALT-F8), pitch is set to 10 non-proportional (CTRL-F8), font 1 is used (CTRL-F8). The number of lines per inch is set to 6 (CTRL-F8), right justification is turned on (CTRL-F8) and underlining is set to non-continuous single line (CTRL-F8). Set the -m switch from the CLI when booting WordPerfect; your style sheet will be loaded automatically.

EXAMPLE 2

WC

A simple word-count macro that expects to find the speller disk in DF1:lex.wp (CTRL-F2, word-count option only).

CTRL-F10
type **WC** *to name macro,*
select **accept**
CTRL-ESC
type **150** *select* **accept**
CTRL-F2
type **DF1:lex.wp RETURN**
select **Word Count, OK**
CTRL-F10

The word-count display is delayed for three seconds so you can read it (ALT-ESC). The dictionary resides on DF1: and is automatically accessed.

EXAMPLE 3

LETTER1

A simple macro that expects keyboard text entry.

CTRL-F10
type **LETTER1** *to name macro,*
select **accept**
CTRL-HOME
type **1** *to designate goto line number*
press **RETURN** *five times*
SHIFT-ESC *(user types in current date)*
press **RETURN** *five times*
SHIFT-ESC *(user types in address line one, return, down arrow)*
RETURN
SHIFT-ESC *(user types in address line two, return, down arrow)*
RETURN
SHIFT-ESC *(user types in address line three, return, down arrow)*
RETURN
SHIFT-ESC *(user types in address line four, return, down arrow)*
press RETURN *five times*
type **Dear** *to be printed by the macro, press space bar*
SHIFT-ESC
RETURN
CTRL-F10

It moves the cursor to the first position on the page (CTRL-HOME, line 1), skips 5 lines (5 RETURNs), waits for you to enter the date (SHIFT-ESC), skips another 5 lines (5 more RETURNs), waits for you to enter 4 lines of address (4 SHIFT-ESCs, skips 5 lines (another 5 RETURNs), adds "Dear" as the beginning of a salutation, awaiting entry of the name (SHIFT-ESC). A simple form of interactive boilerplate, LETTER1 quickly personalizes form letters. Follow a similar sequence to preprogram your letter's closing. You can use advanced versions of this type of macro to move large chunks of identical information into various documents, while simultaneously prompting for custom changes— an ideal way to prepare custom reports or work assignments.

EXAMPLE 4

SEARCHREP

A repeating, visible macro expecting text entry.

CTRL-F10
type **SEARCHREP** *to name macro,*
select **accept**
ALT-F2
select **no**
SHIFT-ESC *(user enters phrase to search for, return)*
RETURN
select **accept**
SHIFT-ESC *(user enters replacement phrase, return)*
RETURN
select **accept**
ALT-F10
type **SEARCHREP,** *select* **accept**
CTRL-F10

It performs a replace without confirmation (ALT-F2) based on text you enter during the macro pause (SHIFT-ESC). It repeats until all occurrences have been replaced (ALT-F10 with SEARCHREP identified as the macro to be invoked). While WordPerfect already contains a search-and-replace function, SEARCHREP may be called from within or call another macro, making it an important building block. For

example, you could design a macro to save a file after a special entry has been replaced throughout the text with a boilerplate phrase (WP replaced by WordPerfect). Remember, anytime there is a macro pause displayed on-screen, the macro is waiting for text entry, or simply a Return before proceeding.

EXAMPLE 5

SRWC

A chained macro that works in conjunction with WC.

CTRL-F10
type **SRWC** *to name macro,*
select **accept**
ALT-F2 *select* **no**
SHIFT-ESC *(user types search string, return)*
RETURN
select **accept**
SHIFT-ESC *(user types replacement string, return)*
RETURN
select **accept**
ALT-F10
type **WC**
select **accept**
CTRL-F10

It searches and replaces without confirmation (ALT-F2) based on keyboard entries during the pause (SHIFT-ESC); then it performs a paused, displayed word count (WC is invoked from within SRWC, ALT-F10 WC) and allows you to edit once again.

EXAMPLE 6

The next three work together in a conditional chain.

CTRL-F10
type **START** *to name macro,*
select **accept**
CTRL-HOME
type **1** *to designate goto line number, select* **accept**
CTRL-F10
CTRL-F10
type **PLATE** *to name macro,*
select **accept**
F5
type **DF1:*** *select* **accept**
move mouse to file desired, highlight
select **Retrive**
CTRL-F10
CTRL-F10
type **PLATE2** *to name macro,*
select **accept**
ALT-F10
type **START** *select* **accept**
F2
SHIFT-ESC *(user types search string, return)*
RETURN
select **accept**
ALT-F10
type **PLATE** *select* **accept**
CTRL-F10

START, the sequence's "Not Found" macro, merely sends the cursor to the first position in a document (CTRL-HOME, line 1). PLATE lists files on DF1: (F5, DF1:*) and selects the one you desire (cursor moved to position by the mouse). It then retrieves MACROS for editing (RETURN once document is highlighted). PLATE2 invokes START (ALT-F10 START), then activates a forward search (F2), which awaits text entry during the macro pause (SHIFT-ESC). Once the search criteria is found, PLATE is invoked (ALT-F10 PLATE), copying in your specified text at the proper place in the document. This chain is a great way to boilerplate entire files into numerous documents. A grand scale search-and-replace function, the macro chain allows you to replace with phrases much larger than those accepted by the replace requester.

One more type of macro is possible: the repeating conditional chain. You have the ingredients in START, PLATE and PLATE2. For homework, add a few lines to the original concept and you'll be going in circles in no time. □

—*TS*

only place that explains how to auto-execute a macro via the CLI when booting.

Build A Better Macro

WordPerfect needs a few additions before its name is changed to MacroPerfect. While the program's ability to record macros is far superior to the other widely accepted method (non-intuitive keyboard entry of special characters, words and spacing requirements), you cannot print out the string of commands to review. Even an on-line display of the commands you are issuing while you define a macro would make life a lot easier. The only way to check the contents of a macro is to keep accurate pre-definition notes, or to replay the file and see what it does. Technically, you can display a macro file listing, but the commands only appear as cryptic codes.

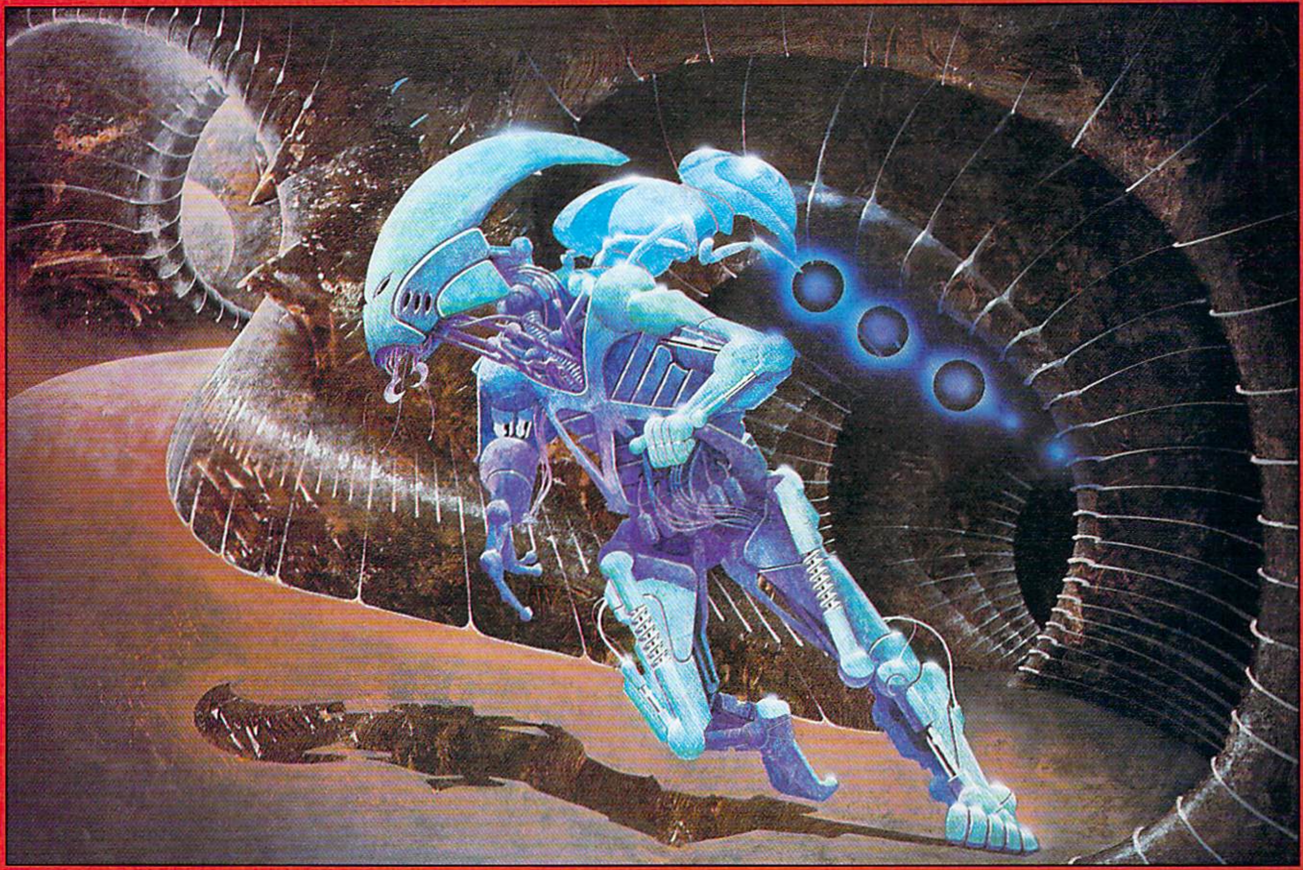
Because there is no readable file, you cannot edit an existing macro and save the variation. This "Same as But" ability allows you to deal only with the desired changes rather than redefining an entire process. A sign of an extremely advanced or powerful program, this feature is invaluable when you are experimenting with a complicated conditional chain.

Do not, under any circumstances, create a macro that saves a file, then quits WordPerfect. Because of a program/system limitation, the file will not properly handle the quit command. When I tested such a macro, WordPerfect did not finish defining the macro before signing off, resulting in a trashed disk. WordPerfect would not re-open. While I didn't risk ruining another copy of the word processor, a macro that answers no to the Save File request and then quits WordPerfect should exhibit the same problem.

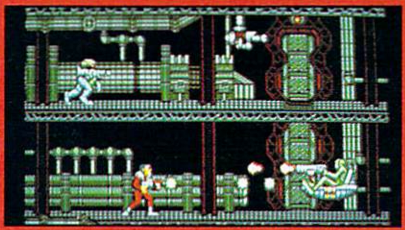
These limitations can be easily avoided and do not seriously damage the amount of leverage macros add to WordPerfect's processing power. The key to any well-executed display, in a puppet theater, or on a page of text, is careful planning and a thorough understanding of the controls. With a few strings attached, your documents will flow faster and easier than ever. ■

Ted Salamone writes and reviews regularly for AmigaWorld. *Write to him at Salamone and Associates, 42 Canterbury Rd., Bridgeport, CT 06606.*

OBLITERATOR









OBLITERATOR

Obliterator is a new and very exciting product from Psygnosis, which takes full advantage of the features of the Commodore Amiga and Atari ST, whilst supporting the full range of 68000, 68010 and 68020 processors.

When compared to Psygnosis's previously released animated graphic adventure - Barbarian, the player will find over 100 separate locations within the products three-dimensional play-field. The effect of the detail and complexity of the graphics must be seen to be fully appreciated.

Two other features which Psygnosis have added to this product are a "Save Game" facility and stunning music and amazing sound effects.

All this should combine to make for yet another award winning product from Psygnosis.

OBLITERATOR — $39.95

Other Psygnosis Titles

Terrorpods	— $39.95
Barbarian	— $39.95
Deep Space	— $39.95
Arena	— $39.95

All available for 512K Colour, Atari ST, Commodore Amiga.

PSYGNOSIS
1st Floor Port of Liverpool Bldg.
Pier Head,
Liverpool.
L3 1BY.
United Kingdom.
Tel. No. 011 44 51 236 8818
Fax. No. 011 44 51 207 4498

PSYGNOSIS

Circle 123 on Reader Service card.

Fancy Filework

Put the CLI in your corner and learn all the right moves when it comes to copying and transferring files.

By Mark L. Van Name and Bill Catchings



THE WORKBENCH ENVIRONMENT is a little like being in the boxing ring—you can't stand still for very long. And just as a fighter has to keep moving his feet in the ring, you probably will need to keep moving your files as you work.

Like most disks, Workbench contains many files in many directories. As you work with the Amiga, you will often need to copy files or to move them to new directories. In our last column, for example, we copied the program files for the standard CLI (Command Line Interface) commands into the RAM: disk. This time—although we may not get you to "float like a butterfly, sting like a bee"—we *will* improve your footwork when it comes to using the CLI commands that move and copy files.

COPYING DISKS / FORMATTING DISKS

You do not have to copy files individually, of course. One of the first things you are told to do with most products is to make a backup copy of each of its disks. These new disks obviously need to contain copies of all of the files on the original disks. To copy an entire disk from the CLI, you use the DISKCOPY command:

```
DISKCOPY [FROM] disk1 TO disk2
  [NAME disk2_name]
```

(The words in brackets ([ ]) are optional.)

After you enter the command, AmigaDOS will instruct you to put the source disk into the drive disk1 and the destination disk into the drive disk2. If you have a two-drive Amiga and want to copy the disk in your internal drive to a disk in your external drive, you could use any of the following variations of this command:

```
DISKCOPY DF0: TO DF1:
DISKCOPY DF0: TO DF1: NAME
  new_disk
DISKCOPY FROM DF0: TO DF1: NAME
  new_disk
```

ILLUSTRATED BY KATE BRENNAN HALL

If you do not give a NAME for the new disk, AmigaDOS will give it the same name as the original disk.

You can also use this command on a one-drive Amiga, but you have to make the source and destination drives the same, and then do a bit of disk shuffling. You would use the command:

DISKCOPY DF0: TO DF0:

Because one drive cannot hold two disks simultaneously, AmigaDOS will ask you to put the source disk into your drive first. It will read part of the information on that disk and then ask you to remove the source disk and insert the destination disk. AmigaDOS reads as much of the disk as possible into memory before it asks you to switch disks. The number of times you will have to repeat switching disks depends on the amount of memory in your Amiga.

DISKCOPY completely erases the contents of the destination disk. Therefore, before you use this command you should be sure that there is nothing on the destination disk that you need. DISKCOPY does not write on the source disk.

DISKCOPY does not work by copying individual files. Instead, it copies the physical structure (the "tracks") of the source disk onto the destination disk. Because it works this way, you will not be shown a list of the files being copied, and you do not have to format the destination disk before you copy onto it.

On the other hand, all of the other file copy commands require that the destination disk be in the Amiga's standard disk format. If the source and destination disks are the same, as is often the case, that is not a problem. If the destination disk is brand new, however, you will have to format it before you can copy any files to it. You do so with the FORMAT command:

FORMAT DRIVE drive_name NAME disk_name [NOICONS]

You use the optional NOICONS parameter to indicate if you want the new disk to have a TRASHCAN directory and icon (omit NOICONS), or if you want it to be completely empty (use NOICONS). You have to include all of the other parameters, including a name for the disk.

If you want to format a new disk in your internal drive, use this command:

FORMAT DRIVE DF0: NAME my_name

AmigaDOS will ask you to insert a disk into the drive and then you will wait while it prepares the disk.

You should be very careful with this command, because it completely erases anything that was already stored on the disk you format.

Copying Individual Files

Once your destination disk is formatted, you can copy files onto it. The most obvious way to a copy a file is with the COPY command:

COPY [[FROM] name1] [TO name2] [ALL] [QUIET]

If the destination (TO) file already exists, its contents are lost because COPY replaces it with a copy of the source (FROM) file. COPY does not affect the source file.

To copy the startup-sequence file in the S directory of your Workbench disk to a temporary file in the same directory, you could use any of the following commands:

COPY startup-sequence TO temp_file
COPY FROM startup-sequence TO temp_file
COPY FROM startup-sequence TO temp_file QUIET

The first two commands would cause AmigaDOS to display on the screen the name of the file (startup-sequence) that it was copying. The QUIET option suppresses this information.

You are not limited to files on your current disk. You can copy files from any directory on any disk to any other location by using complete path names for the files. For example, if your current directory was on the second (DF1:) drive, you could still perform the above copy with a command such as the following:

COPY Workbench:s/startup-sequence TO Workbench:s/temp_file

Similarly, to copy a file from one disk to another, you only have to give source and destination path names that are on different disks.

You also can copy all of the files in a directory to another directory. You can specify a source directory or just omit the source (FROM) parameter, in which case AmigaDOS copies all of the files in the current directory. The destination (TO) directory must already exist, however, as COPY will not create it. If your current directory is dir1 on drive DF0:, and you want to copy its contents to an existing directory dir2 on DF1:, you could use either of the following commands:

COPY FROM DF0:dir1 TO DF1:dir2
COPY TO DF1:dir2

AmigaDOS will display the name of each file it copies unless you use the QUIET option.

The standard COPY command does not copy any subdirectories of the source directory. If you want it to copy these subdirectories, use the ALL option. You can use this option, for example, to perform a file-by-file copy of an entire disk:

COPY FROM DF0: TO DF1: ALL

This method of copying a disk is slower than the DISKCOPY command, and thus you are not likely to use it often. It is more useful for copying complete directories and any subdirectories within them.

COPY, like many other AmigaDOS commands, will accept a file name pattern, or "wildcard," instead of a complete file name. File patterns are composed of special characters that AmigaDOS uses to select files in your current directory. (Patterns are discussed with the LIST command in the AmigaDOS User's Manual.) For example, the pattern #? matches all file names, so the command

COPY #? TO destination_directory

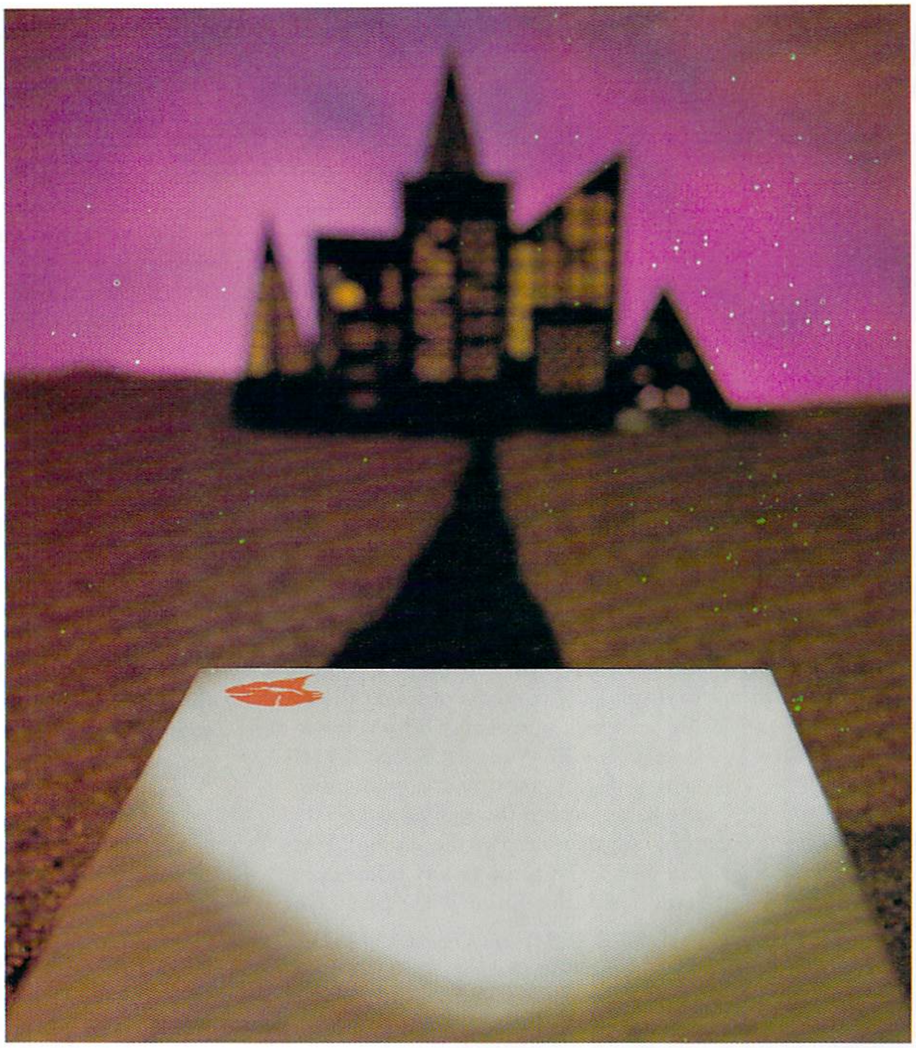
will copy every file in the current directory. COPY follows the other rules we have given even when you specify a pattern, so this command would not copy any subdirectories of the current directory—you would still need the ALL option.

A Copy By Any Other Name Is Still A Copy . . .

Sometimes it is useful to copy a number of files into one larger file. For example, several people could prepare plain text files that are parts of a larger document and then need to merge them into a final, single file. The JOIN command lets you create a new file that contains the concatenation of up to 15 existing files.

JOIN name_list AS destination_name

You separate the file names in name_ ►



TAKE A DRIVE INTO TOMORROW

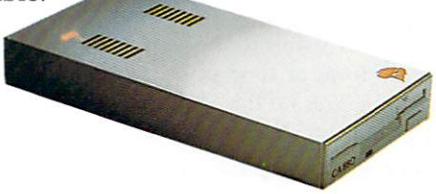
Tomorrow's disk drive is here today. From CALIFORNIA ACCESS™ comes the CA-880, a powerful new 3½" disk drive for all Amiga® computers.

This highly reliable disk drive formats a 3½" double-sided, double-density diskette for 880 kilobytes of storage. The CA-880 is fully compatible with the Amiga 1010 disk drive, but offers much more. The CA-880 is half the size, is considerably quieter, and has an extra long cable. The CA-880 also has a connector that allows you to attach an additional disk drive.

So why wait until tomorrow for what your computer needs today.

The CA-880 is yours for only $229.95 (suggested retail price).

For more information call (408) 435-1445, FAX (408) 435-7355, or write to Logical Design Works, Inc., 780 Montague Expwy., #403, San Jose, CA 95131.



CALIFORNIA ACCESS™
Your Access to the Future

In Europe - Logical Design Works S.A., Geneva, Switzerland, Tel: 022/31 97 52, Fax: 022/32 75 04

 Circle 73 on Reader Service card.

list with spaces. To copy three chapters of a document into a single file, you could use:

JOIN chapter1 chapter2 chapter3 AS
  final_document

JOIN does not change any of the source files, but it will replace the destination file if that file already exists. As with COPY, you can use complete path names for any of the files, so that you can JOIN files from several disks and directories onto any other disk and directory.

You should be careful with JOIN to be sure that the files you are concatenating will make sense as a single file. Many files, such as programs or the files of most word-processing programs, contain header information that must be valid for the entire file. If you JOIN files like these, the result will be useless.

The TYPE command provides one more way to copy a file. When you use it to display the contents of a text file on the screen, you probably do not think of it as a copy. To AmigaDOS that is basically what you are doing: copying the file to the screen (by way of a special program that handles the screen). You can also TYPE a file to any other destination with the optional TO parameter:

TYPE [FROM] source_name [[TO]
  destination_name]

To see startup-sequence on the screen, you would use the typical form of this command:

TYPE Workbench:s/startup-sequence

To copy it to a temporary file as we did earlier, you only have to add a destination file in either of the following two ways:

TYPE Workbench:s/startup-sequence
  TO Workbench:s/temp_file
TYPE Workbench:s/startup-sequence
  Workbench:s/temp_file

You can achieve this same effect by using TYPE and a more general AmigaDOS feature: Input/Output (I/O) redirection. I/O redirection lets you tell a program that typically reads from the keyboard or writes to the screen to get its input from or send its output to a new place. You do this with the < (input) and > (output) characters. The command

TYPE Workbench:s/startup-sequence >
  Workbench:s/temp_file

also will copy the contents of startup-sequence to temp_file.

. . . But Rename Is Not Just Another Copy

All of these methods make a copy of one or more files and leave the originals unchanged and where they were. Sometimes you want to move a file or directory rather than copy it. You could first copy it and then delete the original, but there is a simpler way: the RENAME command.

RENAME [FROM] old_name [TO|AS]
  new_name

(The vertical bar (|) in the second optional parameter means that you can pick either one of the keywords.)

You can use RENAME both to give a file or directory a new name and to move it. To move it you only have to pick a name that is in another directory. You could move startup-sequence into a directory (temp) on the Workbench disk with the command:

RENAME startup-sequence TO
  Workbench:temp

RENAME is fast because it does not physically move the file. It only changes its location in the filing system. Because all of the commands that work with files locate them through the filing system, the effect is the same as if it had physically moved the file.

Unlike COPY, RENAME will not replace an existing file. If the destination file exists, you will get an error.

The RENAME command has one important limitation: Both the source and the destination names must be on the same disk. To move files to another disk, you are stuck copying them and then deleting the originals. This limitation arises because RENAME changes only a file's location in the filing system and each disk has its own filing system.

The best way to learn these or any other AmigaDOS commands is to use them. Start with DISKCOPY and make a copy of your Workbench disk, and then experiment. After a short time you will find that it is easy to use the AmigaDOS commands we discussed here. ■

Mark L. Van Name and Bill Catchings are contributing editors to AmigaWorld. *Write to them at 10024 Sycamore Road, Durham, NC 27703.*



Circle 97 on Reader Service card.

from p. 20
than the spaces between lines with smaller fonts. The problem is worse on the screen than in print, but the page appears unbalanced nonetheless.

While other word processors provide a tally of how many words comprise a document, Write & File goes much further. Given a minimum of a four-sentence paragraph, it will provide a brief analysis, including the total and average number and length of words, sentences, paragraphs, characters and spaces. Another useful feature is the readability index, which displays the reading level necessary to comprehend the document.

Write & File offers an extensive, but non-updatable main dictionary with over 100,000 words. You can also create your own custom dictionary or use the "common" dictionary, with 1,500 frequently used words, for speedier spell checking.

For the touch typist, editing with Write & File is a chore because it depends heavily on the mouse for cursor control. You can move the cursor only with the mouse or arrow keys. The delete and backspace keys erase only one character at a time; there are no key combinations to delete words or lines. The program does, however, use the mouse in two innovative ways. Clicking the left mouse button once places the cursor on the page, a second click highlights an entire word for editing, and a third click highlights an entire line. You can replace words or lines very quickly by highlighting the text and typing the new text; the highlighted text will be deleted automatically.

Write & File can save documents in ASCII format, but every time I imported an ASCII file and began typing, all the text on the line to the right of the cursor immediately disappeared. If I continued editing, the entire program crashed. The manufacturer is aware of the problem, and will update registered owners, which brings me to the subject of technical support.

In an effort to deter software pirates, Softwood periodically changes their tech-support phone number, notifying registered owners by mail. The number I received with the package was no longer in service. A revolving tech support number is a terrible idea. If a pirate can't get the program to work, he'll just go out and steal another one. Meanwhile, the legitimate purchaser has to wait two weeks for the latest number. If you're desperate, SoftWood's distributor, Brown-Wagh, can answer some questions in the interim.

Chatting Across The Fence

You can integrate information from a Write & File database file into a Write & File document in three ways. With Mail Merge, you create a template document in which you can designate up to 32 fields to receive information from a database file. The merge occurs only during the printing process; the template document itself does not change. With List Merge you still create a template, but the information is merged into the document on the screen, where it can be edited and saved. Report Merge integrates statistical information from a database file. Trying to cut information from one application and paste it into another crashes the program quite promptly.

The screen's default color palette is easy on the eyes, but the extensive number of gadgets make it distracting. Rulers border the top and right side of the screen, while scroll bars line the bottom and left side. With gadgets you can alternately hide and show all but the vertical scroll bar. Numbered icons at the bottom of the screen represent the pages of a document, so you can go directly to any page by clicking the mouse. Other gadgets control text alignment and justification. Icons displaying tab stops on the top ruler also indicate the type (left-, right- or decimal-aligned, or centered) of each tab stop. When formatting pages, a thin vertical line extends down through the page to help position the margin. As you position the pointer over the rulers and gadgets on the screen, labels pop up explaining the function of each. When you drag over the top ruler, for example, labels appear, indicating where you can set tabs, margins and paragraph indents. This makes learning to use the program simple, because you don't have to constantly refer to the manual.

The File Side

In the database's spreadsheet-like format, information is entered and stored in cells (rows and columns) rather than fields. The database shares the use of pop-up labels, which is handy for setting column widths. However, because the program does not specify exactly how wide a column is, estimating how much information will fit across a piece of paper is difficult.

You can assign to database columns one of 11 attributes, including Text, Time, Date, Yes/No, Calculation and Phone. Columns can also hold simple mathematical formulas, with multiple levels of parentheses. By holding down the Amiga's shift key and selecting a Phone cell, the computer's built-in synthesizer generates the appropriate tones to dial the telephone number; all you have to do is place the telephone mouthpiece next to a speaker connected to your Amiga. This function transforms Write & File into the ultimate address book for heavy-duty telephone users.

Database sorts and selections are easy to accomplish. You define sort and selection criteria in dialogue windows. Sorts go from low to high or from high to low, and you can specify the order in which the data is displayed. Data selection within the criteria includes greater than, less than, not equal to, greater than or equal to and less than or equal to. Wildcard searches are also supported. Unfortunately, the database cannot generate printed reports; instead, you must import selected data into a word processor document.

By The Book

Instructions for both the word processor and database are provided within the same spiral-bound book, with about 70% dedicated to the word processor. The 128-page manual includes separate indexes and brief reference sections. Although it is fairly thorough and contains clear descriptions of each feature, the manual is sprinkled with annoyances such as omitted words and inconsistent instruction styles. An otherwise very good manual that credits two editors, it should have had far fewer errors.

Write & File offers some truly innovative and useful features, but for every step forward, the developer has taken a step backward. The program's document analysis, integrated database, large and easy to use dictionary, multiple fonts and mouse pointer labels are excellent features. In the negative column, the program has problems editing ASCII files, its provision for cursor control is inadequate and it doesn't space lines proportionately when a mixture of fonts is used. As it stands, Write & File is a fairly good program, but it is so close to being ►

SupraDrive™ Amiga Hard Disk



Improve Your Computer's Performance...

AMIGA 500
AMIGA 1000

* 20, 30, 60, and 250MB Capacities
* Real-time Clock With Battery Back-up (Optional on Amiga 500)
* SCSI Expansion Port (DB-25 Connector) for adding additional SCSI Devices
* 1MB, 2MB, and 4MB RAM expansion capability in the SupraDrive Interface
* Amiga Buss pass-through

AMIGA 2000

* Direct Memory Access (DMA) interface for high-speed data transfers
* Mounts internally in the Amiga 2000
* 20, 30, and 60MB Capacities
* SCSI expansion port

. . . With a SupraDrive.



Internal DMA SupraDrive for Amiga 2000



SupraDrive for Amiga 1000

Supra Corporation

1133 Commercial Way / Albany, OR 97321 U.S.A.
Phone: (503) 967-9075 / Telex: 5106005236 (Supra Corp)

AMIGA is a registered trademark of Commodore-Amiga Inc.

Circle 208 on Reader Service card.

a great program that it's frustrating to use. I'm eagerly awaiting the update.

Write & File
Softwood Company
distributed by Brown-Wagh Publishing
16795 Lark Ave., Suite 210
Los Gatos, CA 95030
408/395-3838
$99.95
One megabyte required.

PIXMATE

The definition of image enhancement.

By Roger Goode

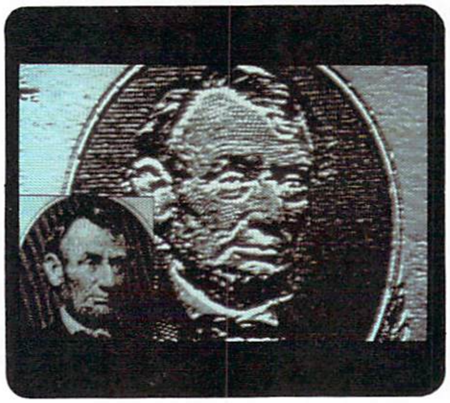
I HAVE SO MANY graphics programs on my software shelf that there's barely room for the cat to sleep anymore! What, I wondered, can the PIXmate image processing package accomplish that the others cannot?

Image processing is often misperceived as able to transform badly out-of-focus and over- or underexposed pictures (space probe videos, spy photos) into ready-for-framing perfection. While only artists and photo-retouchers can perform these miracles, image processing, or more specifically, image enhancing, enables you to improve screen images in specialized ways.

PIXmate embodies the single most important element of image enhancement, that is, the ability to look over an entire image, pixel by pixel, and distinguish between values. It can accomplish this regardless of the nature of the difference, and no matter how small it may be—whether it be two shades of the same color, or an almost-indiscernible edge between two parts of the same object. This edge-detection ability is what allows you to separate a single object from a complicated background, or to pick out details in a complex picture, with ease. In general terms, PIXmate is a very sophisticated tool that gives you complete control over the palette. PIXmate is not a paint program (you can't draw, fill or paint with it), or any other kind of graphics *creation* program. But by changing the palette, you can alter a picture in countless ways.

PIXmate uses standard Amiga pull-down menus and simple-keystroke commands, so getting into this program is fast and painless. The manual is one of the best I've seen, with clear, step-by-step instructions that don't make any assumptions about your background. At first I felt that the tutorials section wasn't thorough enough. But I soon discovered that experimentation, which the manual recommends, is the only way to fully appreciate the features and their multiple uses and combinations.

The more common features include the use of a second (buffer) screen, for use in cutting and clipping parts of an image. You can size the screen and flip it



PIXmate can enhance even Abe's mug.

vertically or horizontally. There are also two separate color-adjustment screens. Here you'll see the first of the really exciting options. The color palette behaves much like the DeluxePaint (Electronic Arts) palette, allowing adjustments in either RGB (red, green, blue) or HSV (hue, saturation, value), with color spreads, swaps, exchanges, and four independent cycle ranges. The palette also has a handy Find gadget that lets you pick any color on screen and, by flashing the color on and off, allows you to find every other occurrence of that color in the picture.

The other color window, Color Bias, allows you to induce global changes. Simply adjust, much as you do with the controls on a television set, the overall contrast, saturation, intensity, and the red, green and blue levels.

PROCESS TO PERFECTION

One of my favorite functions is Pack Colors, which will sort your whole picture by intensity, determine which colors are not being used, consolidate any colors that are duplicated and then place the unused colors at the end of the palette. This is especially helpful when you're trying to perfect a work, and need to add a few colors or set up a color cycle for special effects. There's also the benefit that packing might free up enough colors to let you reduce the number of bitplanes. Sort Colors lets you organize your palette in the same manner without eliminating any of the colors you've chosen. Both of these options function without visually altering the picture.

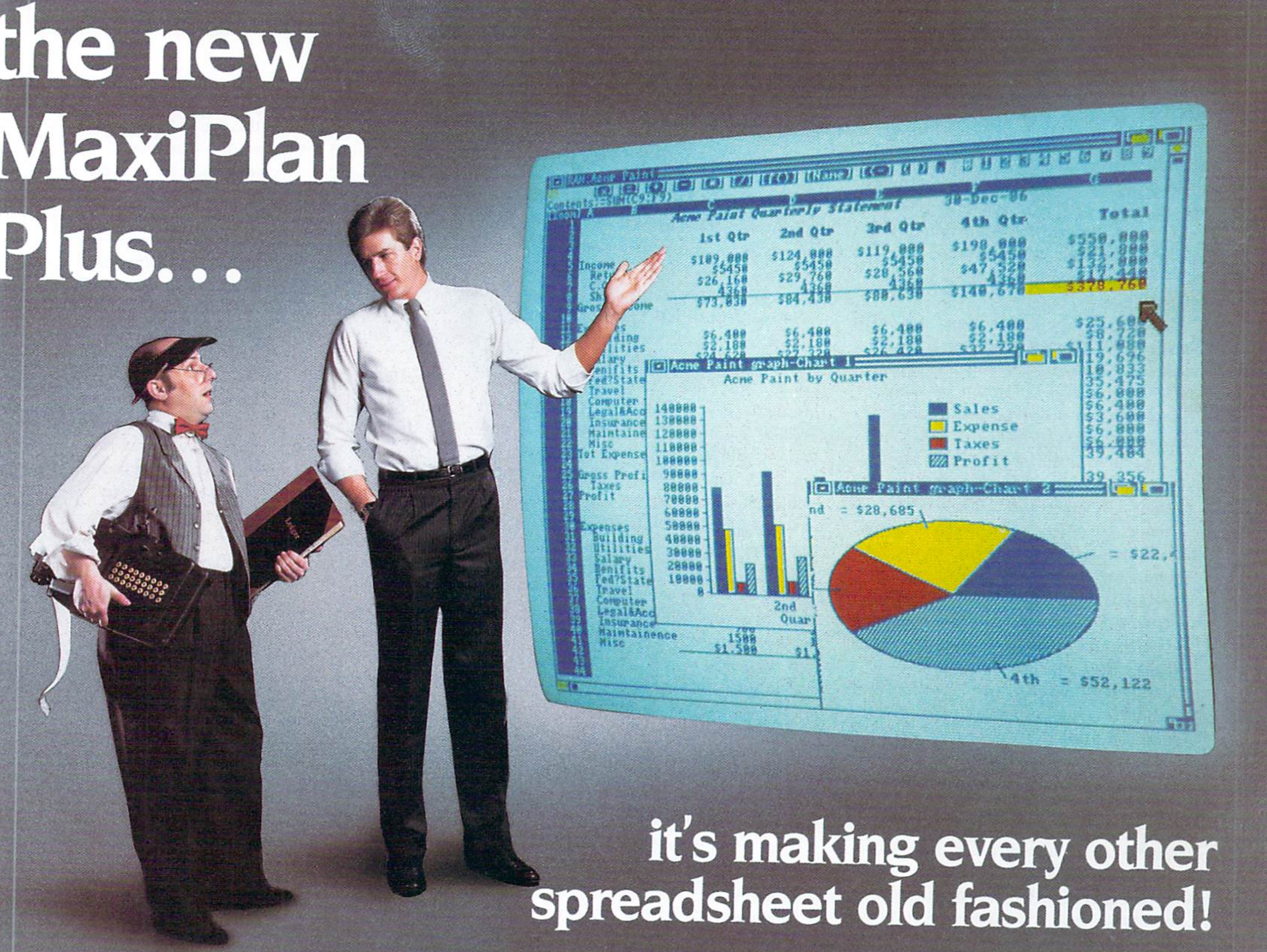
Another trick you can play is to reduce the number of colors in a picture by any number between 32 and 2 with the Less Colors option. You can use this in a variety of ways, including reducing the number of bitplanes.

You can perform conversions between the Amiga's different color modes: change a picture from HAM format to 32-color, or vice versa. The results are surprisingly good. PIXmate also allows you to go from HAM to Extra_Halfbrite (EHB) mode. EHB supports up to 64 colors on screen without the smearing associated with HAM pictures, and will create an additional and identical tint—only half as bright—for each color on a 32-color palette. (According to the manual, some of the earliest A1000 models will not support EHB.)

The Effects menu houses the most intriguing and powerful PIXmate functions. The first item, Display Control, is where you'll find the screen flipping and sizing devices. Also in this window are gadgets for determining how many and which of the bitplanes will be displayed. You can rotate through the gadgets or swap one for another (like shuffling through a set of six cards) to produce a multitude of effects, from interesting to downright bizzare. This window also enables you to select bitmap size (320 × 200 to 736 × 480), and choose a display mode: lo-res, hi-res, interlace, 16-, 32- or 4,096-color.

The second item is the real powerhouse of PIXmate—the Image Processor. Image Processor operations fall into three categories: pixel, matrix and logical. PIXmate can derive data for these operations from either the current or the spare screen images, or from a combination of the two. Results are displayed on the current screen.

Pixel operations scrutinize the whole ►



e original MaxiPlan™ was named
Best Amiga™ Spreadsheet of
6 by F.A.U.G., the world's
est and most active Amiga
r group. Now in 1987, Oxxi is
ud to introduce **MaxiPlan**
s™—the most advanced Amiga
eadsheet ever. With even more
e-saving innovations than the
rd-winning MaxiPlan, the new
iPlan Plus includes Microsoft
el ™-like Macros and Utilities.

n MaxiPlan Plus and your
ga you can:
pen multiple spreadsheets
graphs
ink" data from any number of
adsheets
eate a self-running demo or
active multiple choice quiz,
porating files from word
essors and paint programs
tomatically create reports
as invoices and purchase
s

- Instruct a data entry person with speech or written prompts
- "Recite" your data entries when checking data accuracy against source documents
- Export graphs via an IFF file to any Amiga paint program

The MaxiPlan Plus Spreadsheet features:
- 512 columns by 65,530 rows
- Function key commands
- Ranges or cells referenced by "Name" or cell numbers
- Written or spoken notes that attach to cells or ranges
- Password protected cells
- Easy-to-use pie, bar, line and area graphs
- Up to 8 graphs per spreadsheet
- Lotus 1-2-3 compatibility
- 63 built-in functions such as:
  —Financial (IRR, PV, NPV, FV, PMT)
  —Data base (Index, Find, Lookup)
  —Presentation (Color, Style, Speech)

With the MaxiPlan Plus Data Base you can:
- Sort on any number of fields in any order
- Maintain up to 16 data bases per spreadsheet
- Create merge files for labels or form letters
- "Find" or "Lookup" any specific record or records

With the MaxiPlan Plus Macros you can:
- Define up to 32 macros for any spreadsheet
- Activate macros with a single key stroke
- Automatically generate macros under record mode
- Use over 70 different macro commands
- Create templates for data entry
- Incorporate speech to instruct, remind or inform user

MaxiPlan Plus™
$199.00
at your local Amiga software dealer.

Oxxi inc.
P.O. Box 4000
Fullerton, CA 92634
(213) 427-1227



MaxiPlan
Named the best Amiga spreadsheet of 1986 for its outstanding mouse interfaces, unique pull-down menus and advanced speech capabilities.

Excel is a trademark of Microsoft Corp.

Circle 33 on Reader Service card.

image, and change only pixels that fall within parameters you set up beforehand. Matrix operations transfigure any selected pattern of pixels into relief-like forms. For example, if you choose a diagonal pixel pattern, the result might look as though a wave washed across your picture and left diagonal rows standing on the surface.

The logical operations effect the entire image. They behave as filters; once images pass through, altered states emerge. NOT can be used in tandem with any of the other logical operations; it passes on the complement of each color. AND filters out all but those pixels that are the same on both the current and spare screens. OR merges data from both screens, and SUB, when used with pixel or matrix operations, calculates the difference between pixels on each screen and prints the result. EOR (exclusive-or) performs a binary operation on each pixel to yield another color.

Some of the logical operations produce such straightforward results as complementary or photographic negative images. (Although I didn't try it, the manual claims this process can be run in reverse to make positive images from film negatives.) Others are a bit more esoteric. These work best by combining data from both screens and can result in some pretty wild images.

The eight Pixel-Processing gadgets—AVG, RND, MF1, MF2, USM, LCE, BIN and THR—work in combination with three slide controls. Threshold, Limit and Hits. By adjusting these sliders you set up parameters for comparing one pixel to another. Your operations are then performed on the basis of that comparison. For example, you might set the Threshold control midway in its range so that pixels above that point would be affected one way, while those below would be affected another.

The AVG, MF1 and MF2 operations perform a smoothing function, a sort of "noise reduction," each using a somewhat different approach. These are very helpful for softening hard-edged or grainy images. RND will give a more grainy or diffuse look to a picture by replacing the center pixel in each grid of nine with a color chosen randomly from the same nine. LCE and USM enhance contrasts between pixels, and are helpful in edge detection and in playing up details. BIN and THR can both simplify an image by reducing the number of colors or values.

One thing you should be aware of is that some operations demand quite a bit of memory, chip memory in particular. This can, on occasion, leave you unable to perform an operation, even though you may have plenty of fast RAM available. PIXmate's manual offers some hints to help get around this, but in some cases you may be stuck.

Consider that all of PIXmate's functions can be run alone or in combinations to give you thousands of different results from just one image. Not all the results will be of use, but as you learn to use PIXmate to achieve your particular objectives, its true value will become clear. PIXmate answered one of my prayers with its ability to read and load raw data files. Using this entry under the File menu I was able to convert some of my stone-age Graphicraft files to IFF format—something I've been unable to do in the past.

PIXmate brings many useful, powerful and very unique tools together in one package. And though it contains features found on other graphics programs, I would recommend it no matter how many you already own. As for myself, well. . . I'll just have to get the cat one of those baskets to sleep in.

PIXmate
Progressive Peripherals & Software
464 Kalamath St.
Denver, CO 80204
303/825-4144
$49.95
512K required.

ZING!KEYS

An infinite-possibility utility.

By Louis Wallace

ZING!KEYS IS a set of powerful, keyboard-based user-interface enhancements. The Zing!Keys controls include macros—keyboard macros, which replace complex sequences of keyboard commands with single keystrokes, and Intuition macros, which issue commands by controlling the mouse and windows—and Hot Keys. Hot Keys introduce new tasks while other work is running; by pressing just one key, you can open a new CLI window, activate a calculator or load a word processor, for instance.

The package includes over 40 defined Hot Keys and macros, including functions to save screens in IFF format and print screens in any of three sizes, as well as password control. Also included is the KeyEditor, with which you can create custom macros and Hot Keys, then edit and save them to disk.

CREATE YOUR OWN

Another method of creating macros is through the Record Macro feature. Once activated, it will record all keyboard or mouse input entered. Perhaps you have a spreadsheet or word processor that requires you to type in a long path name and answer keyboard or mouse prompts. By recording the sequence, you can later communicate the same information by pressing whichever key you've specified. Once you have recorded and saved a session, you can load it into the KeyEditor for editing or customizing.

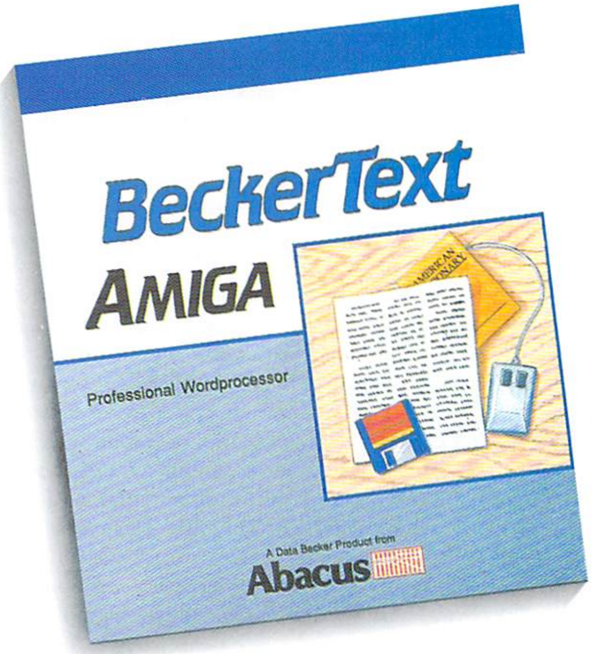
To incorporate any supplied function into your custom keys, simply press the corresponding key during the recording process, or add it via the KeyEditor. These functions greatly expand the abilities of user-created macros, because many, such as those that move rear windows to the foreground (and vice versa), resize or reposition windows, do not exist as keyboard features at all.

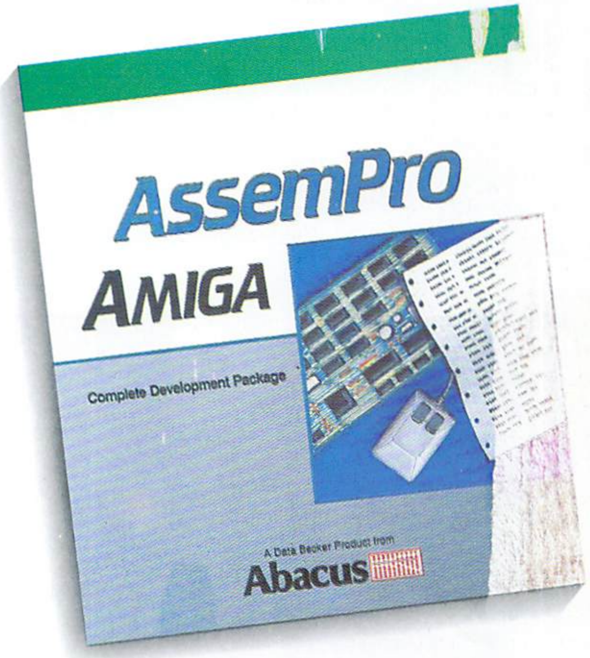
You might want to create several macros for actions you routinely perform, then link them together as a series of nested macro keys. With the supplied variable input functions, you can instruct automated sequences to prompt you for any information that varies from use to use. I created a macro to activate my C compiler; it prompts me for the source code name and linker directives. Another macro loads my text editor and source code file. While you could do some of these things using AmigaDOS batch files and the Execute command, Zing!Keys enables you to accomplish far more, and it's easier to use.

The History feature saves CLI input. With it, you can recall previously-typed commands, edit and re-issue them. Each line holds up to 255 characters, and you can determine the number of lines to be remembered (the default is 10 lines). Because I am not a perfect typist, I find this very useful.►

Circle 124 on Reader Service card.

New from Abacus





BeckerText—More than just a wordprocessor. **BeckerText** gives you all the easy-to-use features found in other wordprocessors, plus you can do much more. Merge sophisticated IFF-graphics into your documents. Automatically hyphenate words at the end of a line. Create a table of contents and index for your documents, automatically. Perform calculations on columns of numerical data. Use the function keys to store up to 30 of your most used macro command sequences. Print multiple columns of text. Built-in spelling checker checks as you type. Adapts to virtually any dot-matrix, letter-quality or laser printer. When you need more from your wordprocessor than just word-processing, you need **BeckerText**. $150.00

TextPro—The full-function word processor that shares the true spirit of the Amiga—easy to use, fast and powerful with a surprising number of extra features. Spell checker. Index and table of contents generator. Merge IFF graphics into your documents. $79.95

AssemPro—Program your Amiga in the fastest language possible. **AssemPro** is a completely interactive assembly language development package. With the editor you can edit multiple windows and transfer code between windows. Perform block operations and search and replace. The fast two-pass macro assembler does the linking automatically. Perform conditional assembly. Compile to disk or memory for lightning speed. Advanced debugger with 68020 single-step emulation. Built-in disassembler and reassembler. Supports 68010 if installed. Help is available at the touch of a button. Includes an entire library of functions to make programming less of a chore. Assembly language development couldn't be easier. $99.95

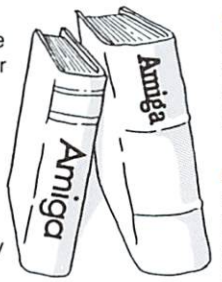
Best Seller!

DataRetrieve—The powerful, easy to use data management system. Quickly set up your data base with on screen *mask* templates. Password security. Large capacity. Performs complex searches and sophisticated indexing. Easily outputs to most printers. $79.95

New books for the Amiga!

Amiga for Beginners • Perfect introductory book for new or prospective owners. Unpacking and hooking up your Amiga. Taking your first steps in AmigaBASIC. Much more. $16.95

AmigaBASIC—Inside and Out Above and beyond any BASIC tutorial you've ever seen. Teaches you Amiga BASIC with a hands-on approach. Many useful programs. $24.95



Amiga Tricks & Tips • A fantastic book chock full of quick hitters. Packed with vital Amiga info. Using fonts. Access Amiga libraries from BASIC. Many example programs written in C. $19.95

Amiga Machine Language • Finally a book written expressly for the Amiga to teach machine language. Discusses 68000 architecture, addressing modes and instruction set. Much more. $19.95

Please note our new address and phone numbers

You can count on **Abacus**

Available at Amiga dealers everywhere

Dept. L3 • 5370 52nd Street SE • Grand Rapids, MI 49508

Phone 616/698-0330 • Telex 709-101 • Telefax 616/698-0325

Call or write today for your free catalog of our new Amiga software and books or the name of your nearest dealer. You can order direct by phone with your VISA, American Express or MasterCard or send your completed order blank. 30-day money back guarantee on software. Dealer inquiries welcome—over 2400 dealers nationwide.

Amiga is a trademark of Commodore-Amiga, Inc.

☐ **Yes!** Please send me the following Amiga software.

☐ Please send me a free catalog of your new Amiga software and books.

Qty.	Products	Price	Totals
____	TextPro	$79.95	____
____	DataRetrieve	$79.95	____
____	AssemPro	$99.95	____
____	BeckerText	$150.00	____
	In USA add $4.00 for shipping		____
	Outside USA add $12.00 per item		____
	Mich. residents include 4% sales tax		____
	Total amount (US funds)		____

Payment: MC VISA Check Money Order

Card #

Credit card expiration date: __/__

Name:

Address:

City:

State: Zip:

Telephone:

L3

I was impressed by Zing!Keys' ability to run simultaneously with other tasks. While I did not use it with any games, it functioned well with my two C compilers, two word processors, three graphics programs and another utility. I also appreciate its lack of copy protection. The 48-page manual is adequate for those with AmigaDOS and CLI expertise, but the small tutorial section does not begin to cover all the features of the package.

The built-in Help menu is there only to get you started in using Zing!Keys. You are expected to remember the key definitions in order to use the program. An excellent enhancement would be the inclusion of key templates showing the standard macros and Hot Keys. A couple of blank templates would be nice for labeling user-created macro keys, too.

Aside from those complaints, I am pleased with Zing!Keys. Whether you are a CLI user or just want to be, this is a perfect way to increase your control of the computer and thereby, your efficiency.

Zing!Keys
Meridian Software Inc.
PO Box 890408
Houston, TX 77289-0408
713/488-2144
$49.95
No special requirements.

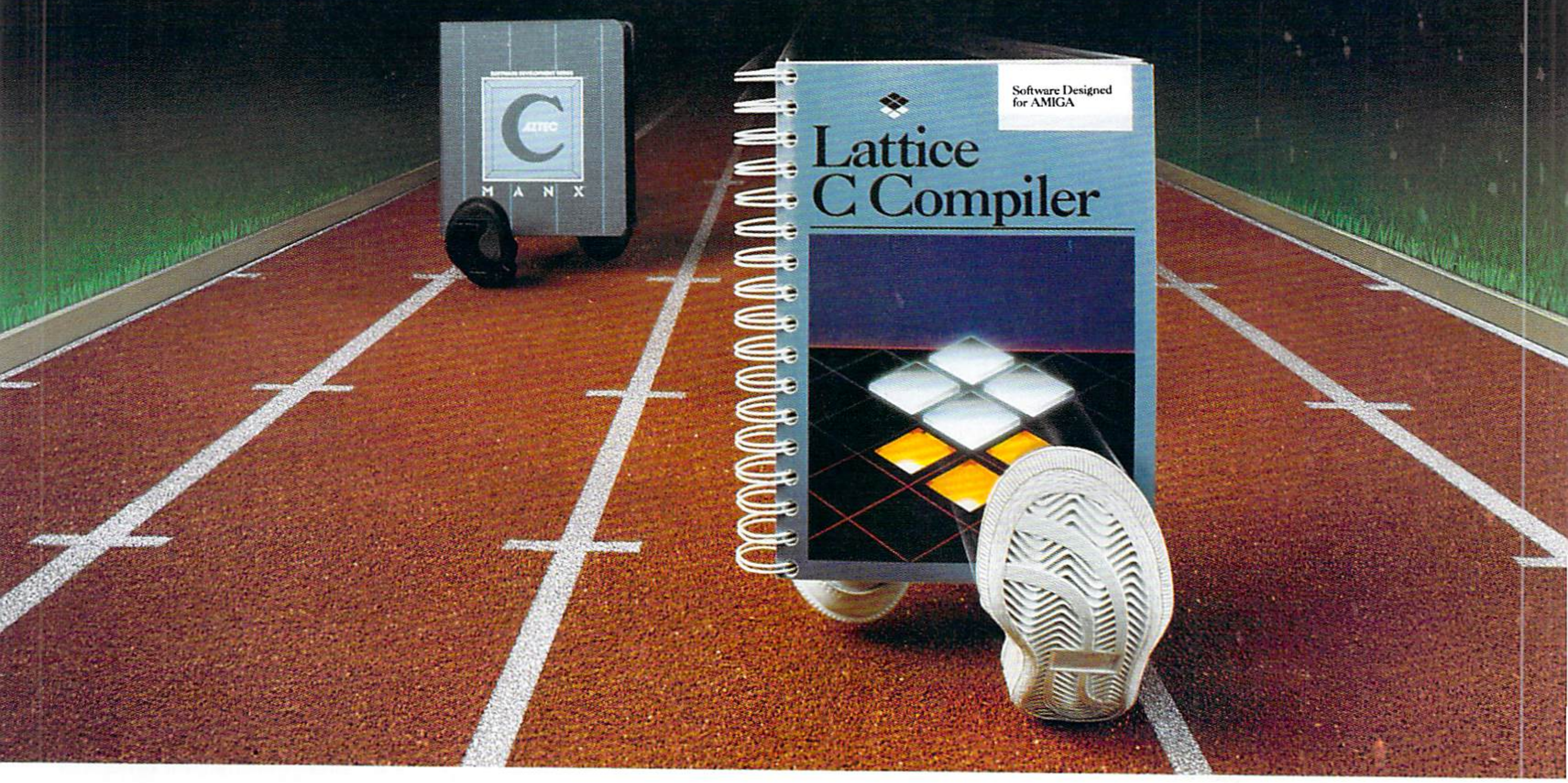
PageFlipper

For budding Disneys, it's simply ducky.

By Gary Ludwick

AS A KID, I drew stick figures on the pages of a tablet, and animated them by flipping the pages. Now there's a way to do electronically what I used to do with my thumb! But PageFlipper, by Mindware, doesn't just animate a series of drawings; it automatically generates a script, too. This allows complete control of the animation's sequence, timing and other variables that affect the quality of the outcome. PageFlipper can also be used as a slide-show controller (scripted or single-stepped), and with a little work you can even synchronize your animation to a soundtrack. ►

C who's winning the race. Lattice C for Amiga.



Lattice C has long been recognized as the best C compiler. And now our new version 4.0 for Amiga™ increases our lead past the competition even further.

Ready, set, go. The new Lattice AmigaDOS C Compiler gives you faster, more efficient code generation and support for 16 or 32-bit integers. There's direct, in-line interface to all Amiga ROM functions with parameters passed in registers. What's more, the assembler is fully compatible with Amiga assembler syntax.

More great strides. The linker, Blink, has been significantly enhanced and provides true overlay support and interactive recovery from undefined symbols. And you'll have a faster compile and link cycle with support for pre-linking.

There's no contest. Standard benchmark studies show Lattice to be the superior C language development environment. With stats like these, it's no wonder that Commodore-Amiga has selected Lattice C as the official Amiga development language.

	Lattice® Version 4.0	Manx® Version 3.40
Dhrystone	1294 Dhrystones/second	1010 Dhrystones/second
Float	22.20 Secs. (IEEE Format) 10.16 Secs. (FFP Format)	98.85 Secs. (IEEE Format) 17.60 Secs. (FFP Format)
Savage (IEEE)	47.67 Secs./.000000318 Accuracy	119.6 Secs./.000109 Accuracy

Going the distance. You'll experience unsurpassed power and flexibility when you choose from several cost-effective development packages. There is even a full range of supporting products, including a symbolic debugger, resource editor, utilities and specialized libraries.

You'll discover that your software purchase is backed by an excellent warranty and skilled technical support staff. You'll appreciate having access to LBBS—one of the world's first 9600 baud, 24-hour bulletin board services. And you'll be able to conference with other Lattice users through the Byte Information Exchange (BIX) network.

Cross the finish line. Order your copy of the Lattice AmigaDOS C Compiler today. We'll supply the speed. You bring the running shoes.

Lattice
Subsidiary of SAS Institute Inc.

Lattice, Incorporated
2500 S. Highland Avenue
Lombard, IL 60148
Phone: 800/533-3577
In Illinois: 312/916-1600

Circle 23 on Reader Service card.

PageFlipper handles digitized images as well as those from any IFF-compatible drawing program. The only screen-resolution requirement is that all illustrations in a given sequence be the same. That means you have to exercise care when mixing images from different drawing programs, since not all use the same resolution, even though all may save in IFF format.

Pageflipper is extremely easy to use. Run it from the CLI, and you get a black screen with two pull-down menus. The first has three commands—Animate, Controls and Quit—while the second offers Files and List. Thhhhat's all, folks!

How to Make Your Ducks Kiss

Let's assume that you have a series of six drawings (which include the numbers one through six in their file names), on loaded disk. Through the Files requestor, you can access PageFlipper's two-part directory. The left side displays your disk files, and the right half is blank. As you click on the names of the drawings, their titles appear to the right. Here in the directory box, you begin also to create the script that will control your animation. By clicking on the time slot and entering values from zero on up (including fractions) you specify how rapidly each frame is replaced.

The Loop option, accessible via an-



Animate or control your duck puckers.

other directory slot, allows you to create sequence repeats within the overall animation. For instance, if your third frame shows a character with his eyes open, and he has his eyes closed in frame four, you can create a sequence, or loop, in which the character blinks as many times as you desire. The time slot lets you control how rapidly the blinking occurs.

Once you have taken your best guess at timing and loops, clicking the Load button will put the images into memory and generate a script based on your specifications.

Through the Controls menu you can select global effects, including Raw or Buffered animation. In the Raw mode, all frames are retrieved from the same memory location, and are shuttled back into that location one at a time. This is fine for black-and-white line drawings, but full-color illustrations entail more information, and therefore require more time to move, so that often a white flash is perceived between frames.

With buffered animation, the frames reside in two separate memory locations and are retrieved alternately. (Frames one, three and five are in memory location A, and frames two, four and six in location B.) This way the program has twice as much time to load, shuttle and display images, resulting in smoother animation—without the white flashes. Buff- ►

ered mode though, requires twice as much memory as raw; 512K machines need not apply if you have more than a couple of frames to show.

The Controls menu also offers Cursor arrow on/off, Forward or Reverse single-frame stepping (to view one frame at a time by mouse control) and Continuous or Singular run of the animation script. Hitting the OK button adds these effects to your script and returns you to a blank screen. Just pull down the first menu, select Animate and away it goes!

If your animation doesn't look quite the way you had hoped (odds are it won't), you have two ways to go. Either clear the script and frames from memory and start over, or edit it using Amiga's ED. Multitasking makes it easy to display PageFlipper in one window and ED in the other, so you can tweak and check until you get things right. But again, 512K machines won't have this advantage.

PageFlipper is the first in a series of three animation/video products Mindware plans to release over a six-month period. Each will expand upon the previous product. Through Mindware's impressive upgrade policy, you will receive full credit for the price of your current package toward the next program in the series. In other words, if you buy all three, your total expenditure will only equal the cost of the highest-priced package, but you'll keep them all!

In a world where programs have gotten complicated, esoteric and often very pricey, PageFlipper is a refreshing change. It does exactly what it promises to, it's powerful, simple to use and relatively inexpensive. I wish the manual had an index, but as a collection of tutorials, it teaches you everything you need to know about the program. If you are into animation, or it's something you've wanted to try, PageFlipper will help make your life easy (and keep your blood pressure low).

PageFlipper
Mindware International
110 Dunlop St. W., Box 22158
Barrie, Ontario
Canada L4M 5R3
705/737-5998
$49.95
512K required.

THE WORKS!

Work worth doing is worth doing cooperatively.

By Bob Ryan

IN THE COMPUTER software universe, the brightest stars fall under one of the Big Three categories: spreadsheet, word processing and database programs. With The Works! you get all these capabilities on one disk. At $199.95, The Works! can be an excellent value... if its strengths match your needs. The problem is that all the components were not created equal.

BEAN COUNTING

The spreadsheet contained in The Works! is Analyze!, a program that will set you back $149.95 if you purchase it separately. Analyze! is a powerful spreadsheet that can exchange files with Lotus 1-2-3, an important capability if you use Lotus at the office and want to take work home. The program has over 40 built-in functions and can handle large amounts ►

Circle 51 on Reader Service card.

of data. It is the fastest Amiga spreadsheet in standard recalculation tests.

Analyze! lets you create different types of charts from your spreadsheet data in many colors. It takes advantage of the Intuition interface, but offers keyboard alternatives for many operations that are best performed from the keyboard. Analyze! also sports a helpful macro capability that lets you perform repetitious tasks easily. To help you master the program, a comprehensive reference manual complete with a tutorial is provided.

Although some other Amiga spreadsheets have more functions, Analyze! is powerful enough for just about any job. It is the best program in The Works!.

Word Crafting

The word-processing component of The Works! is Scribble!, a middle-of-the-road word processor. Scribble! is powerful enough to create basic documents, but it lacks features such as multiple text columns, multiple fonts and graphics that are quickly becoming standard in Amiga word processors. If your needs don't go beyond text insertion and editing, then Scribble! is all you require in a word processor. If your demands are more advanced, you'll want a different program.

Besides the basic editing functions, Scribble! includes a spelling checker and a powerful mail-merge capability. Like Analyze!, it uses Intuition while providing keyboard equivalents to pull-down menu commands. Scribble! also lets you render any character, word or block of text in bold, italic, underline or a combination of these type styles. I like this ability, but dislike the way you must go about changing styles. Because Scribble! is mode-based, to change type from plain to boldface you must pick Bold from a menu, hold down the left mouse button while highlighting the text, release the button, and reselect your default type style. A shorter approach is to first select the text you want to change and then select the operation you want to perform. One of the major goals of Intuition and other mouse-and-menu interfaces is the elimination of modes. Scribble! fails in this regard.

Data Massage

The final member of The Works! troika is Organize!, a file manager that has some advanced features and some notable deficiencies. Like other file managers, Organize! lets you define fields and enter data into them. For example, to create a list containing names and phone numbers, you'd define a Name field and a Number field. You'd then enter the appropriate information. Organize! lets you sort the records (name/number combinations) based upon any of the fields, and select records that match a certain criterion (such as people whose last names begin with the letter M).

The best feature of Organize! is its ability to generate forms. Normally associated with relational database managers, the Forms feature lets you create different views of your data file. Let's say you have a customer file with 20 fields. To do a mailing, however, you need only six fields. Organize! lets you build a form that uses only the information you need, so you can use the same data in different applications.

The worst thing about Organize! is that it doesn't let you perform multiple-level sorts. Unlike most file managers, it won't let you sort a file by state and then ►

sort again by customer name within each state. Multiple-level sorts are basic to file managers and databases, yet strangely absent from this one. This is a serious flaw that severely limits the usefulness of Organize!.

Come Together

Although all three programs were written by Micro-Systems Software, they don't exchange data very readily. The best integration occurs between Scribble! and Organize!: you can create Scribble! MailMerge files from Organize! data files. Since only one of the programs—Scribble!—supports the Amiga Clipboard, you can't cut and paste between applications. In addition, you'll need one megabyte of memory to run all three programs at once.

Because the components of The Works! cost nearly $350 when purchased individually, the package looks like a bargain. And so it is in some cases. If spreadsheet applications are your primary need, don't hesitate to put up another 50 dollars to get Scribble! and Organize! in addition to Analyze!. If you're new to computers or the Amiga, The Works! is a good introduction to Big Three software. But if your main application is advanced word processing or database management, look elsewhere; the extra programs you get in the package won't make up for its limitations.

The Works!
Micro-Systems Software
distributed by Brown-Wagh Publishing
16795 Lark Ave., Suite 210
Los Gatos, CA 95030
408/395-3838
800/451-0900
$199.95
One megabyte required.

GAME SHORTIES

Arkanoid

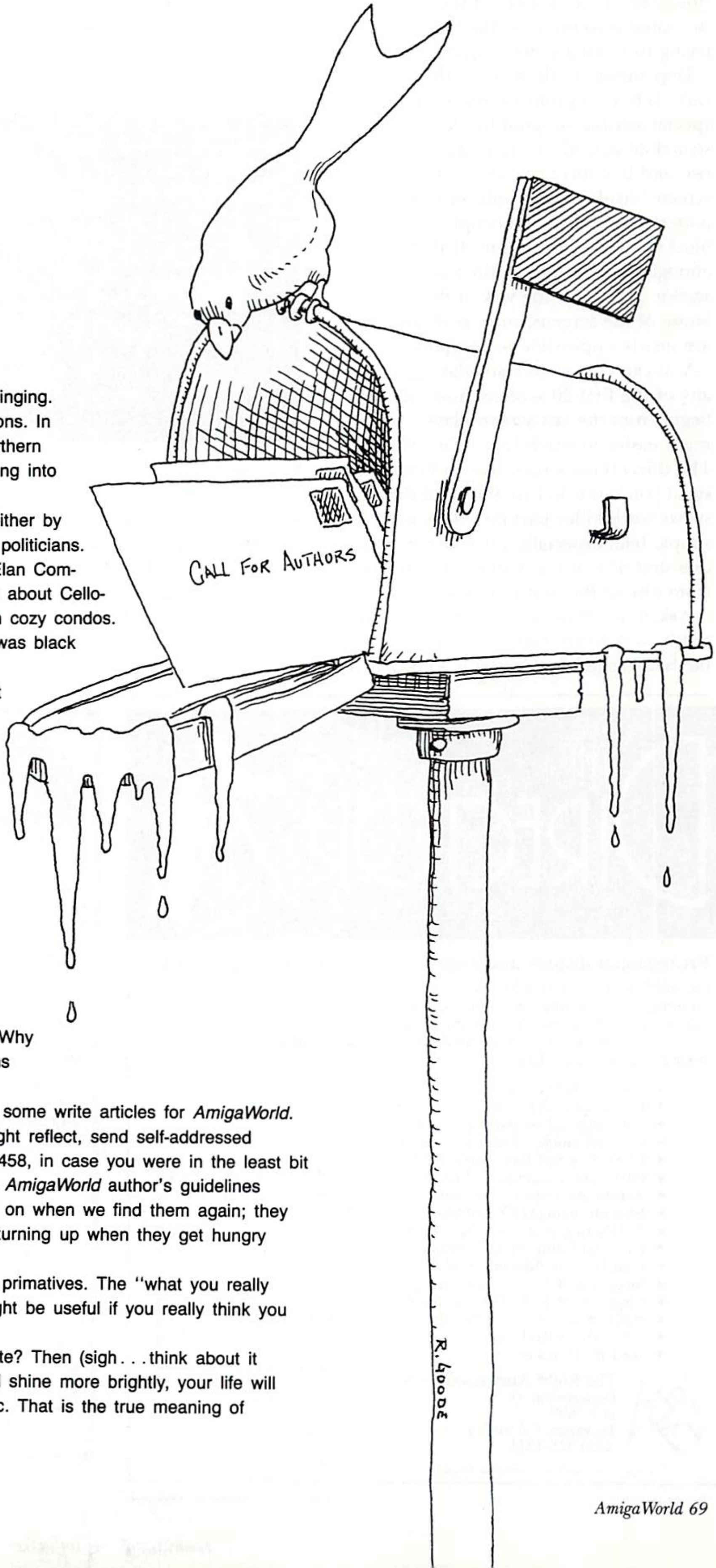
FAST PACED AND addictive, Arkanoid, by Discovery Software, is a reproduction of the arcade game by the same name.

Arkanoid is a descendant of the early video game Break Out. The object of Break Out was to keep a ball in play using a paddle. The ball followed geometric rules, bouncing off walls, and the screen displayed blocks that you could destroy with the ball. The object was to clear the screen of blocks.

Arkanoid's backdrop story casts you as commander of an emergency shuttle from the starship Arkanoid. The 4.5 million Arkanoid passengers depend on you to protect them from enemy forces. In this game, the ball is an energy ball, the blocks are space walls and the paddle is the space shuttle Vaus.

Unique wrinkles make Arkanoid more interesting, though. Blocks sometimes randomly drop power capsules when destroyed. Catching them causes certain events to occur. The various types of capsules (each is labeled) can cause the ball to slow down, the Vaus to widen, give ►

Call for Authors



Yes, it is spring again. The birds are shining, the sun is singing. The frosts are melting into flowers, showers, lambs and lions. In the deep souths it is hard to tell the difference. In the northern climes the last dirty drifts at the side of the road are sinking into mud.

Somehow we have all managed to survive the winter. Either by pulling up the down comforters or trailing after zephyrous politicians. The uppier Amiga owners have started hanging up their Elan Comprexes, Descente togs and L.L. Beanerie. Fading thoughts about Cellophane crackling around pseudo-yules on plaster hearths in cozy condos. The only bracing or wintery chill for these few fortunates was black Monday and the YSL apre-shave splash.

Others, with lesser amounts of expendable income, beat the cold with libation, lust or dreaming. And some of the more fanatic curled up around an Amiga all winter. Trying to keep numb fingers unkinked with fast and frubrious keyboarding.

"Computers run faster in the cold" must have been muttered through steam clouds around kitchen tables food-stark and power-strip weary.

"But will it pay for the rate hikes, nukes and import tariffs?" asked spouses (should that be spice?). "Will all this digi-watching, Bob and Ray tracing, cursoring, swearing and mousing about raise our standards of living? Will data-debasing, fast and hard disking, cheeze-spread sheeting and wordysom processing bring us any closer to Nirvana? What is it worth? Where does it lead? Why don't you come to bed anymore? And double clicking icons doesn't work on real trash."

Some shrug, some sigh, some argue, some resign, and some write articles for *AmigaWorld.*

Of course, those who know more than their incomes might reflect, send self-addressed stamped envelopes first (80 Elm St., Peterborough, NH 03458, in case you were in the least bit curious) for their personal copy of the official, authoritative *AmigaWorld* author's guidelines (which may or may not be sent out post haste, depending on when we find them again; they were lost sometime during the last shuffle, but should be turning up when they get hungry enough).

They are pretty dry reading, actually, but they cover the primatives. The "what you really should know abouts" and "be sure tos" and stuff that might be useful if you really think you have a prayer.

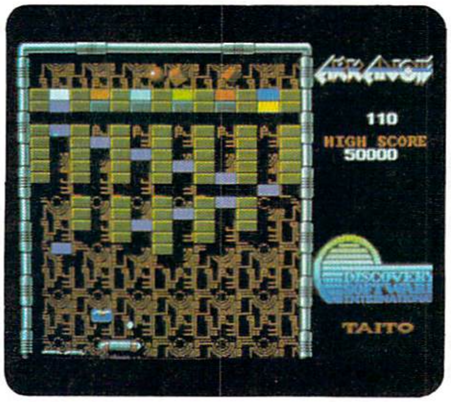
But what if it really works? What if we buy what you write? Then (sigh . . . think about it for a moment), the summer of your Amigahooded days will shine more brightly, your life will be hotter, your tan deeper, and your vacations more scenic. That is the true meaning of life . . . or not.

you the ability to fire laser blasts or bestow other powers. One of the tricks of the game is to not miss the ball while trying to catch a power capsule.

Depending on their color, the blocks carry different point values. Some have special attributes—gold blocks are indestructible and silver ones take between two and five hits to destroy. The 32 screens display space walls of different patterns, ranging from simple rows of blocks to complex designs. If that is not enough, various objects float around the screen and get in the way of the ball. Some of the screens, such as 19 and 26, are nearly impossible to complete.

You can choose to start playing from any of the first 20 screens. You can also begin from the last screen played, making it easier to reach levels above 20. The thirty-third screen has no blocks; instead you must destroy the head that spews forth killer particles. This is no simple feat, especially since you only get one shot. If you fail, you must start over from one of the first twenty screens.

Arkanoid allows you to set the speed at which the ball starts moving. Because the ball's speed increases the longer it is in play, this feature is useful on the more difficult screens. One flaw is the game's inability to save high scores once the machine is turned off. Though the game is copy protected, Discovery will sell you a



Catch the capsule, but don't miss the ball.

replacement diskette for three dollars.

Like most good games, Arkanoid is simple to learn, but difficult to master. The excellent graphics and sound complement exciting play to make it an enjoyable addition to your Amiga game collection. *($49.95, Discovery Software International, 163 Conduit Street, Annapolis, MD 21401, 301/268-9877. No special requirements.)*

—Bill Catchings

DARK CASTLE

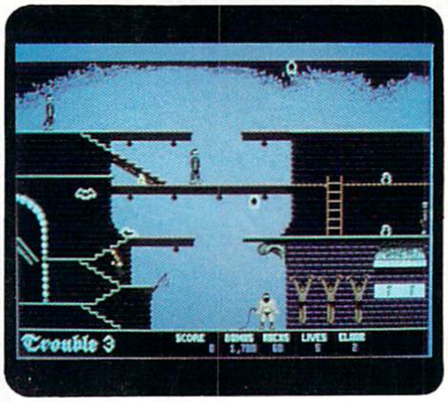
A PORT FROM the Macintosh, Dark Castle is similar to legions of other arcade-adventure games. The castle consists of several rooms (levels), each of which requires that you perform special feats before you can move on to the next room. Sometimes you need items or skills from lower levels (earlier rooms) to succeed later on. You can choose among beginner, intermediate or advanced playing levels from the startup.

Your "hero" first appears in the beautifully-drawn Great Hall. Along the walls you can see four doors. Indicate (with the mouse) which you want, and the character will run to that door, open it and disappear inside. While some doors always lead to the same room, others lead to different rooms, randomly. You control your hero's movements with the keyboard or a joystick. Move him left, ►

right, up and down, and make him duck, pick up objects, and jump. You can take aim and throw the stones you carry with the mouse or joystick.

Once you enter a room you will find yourself surrounded by a variety of unfriendly creatures. In the Shield 1 level (which is similar to Donkey Kong), an ogre throws bouncing boulders—grunting with exertion—while screaming urchins run around and block your path, ready to knock you over. You must make your way to the top, running and climbing ladders from one level to the next, while avoiding the boulders. You can kill the urchins with stones, but the ogre is immune to them. Along the way you will find elixir and stones that can help keep you alive longer.

In other rooms you'll find crows, vampire bats, rats, torture chambers (complete with hooded men cracking whips), arrow-shooting robot guards, swinging



Battle the torturer and snatch the key.

ropes that you must catch to get across the room, trap doors and more.

Dark Castle is a disk-based game (all files of each level are loaded from disk as needed), which means waiting periods between levels. Since it is copy protected, you cannot load the game into RAM or onto a hard drive. While I found this irritating, it did not detract a great deal from the game play on my dual-floppy system. However, since the game is on two disks, playing on a single-drive machine requires that you swap disks between levels, slowing the process down more.

While the game concept is not terribly innovative, the sounds and graphics are professional, and it takes practice to master the game. If you want an arcade game, but ultra-speed space shoot-'em-ups aren't your cup of tea, then Dark Castle offers the kind of entertainment you and your children might enjoy.

($39.95, Three-Sixty Inc., 2105 S. Bascom Ave., Suite 290, Campbell, CA 95008, 408/879-9144. 512K required.)

—Louis Wallace

Indoor Sports

FOR THE PHYSICALLY inactive, Indoor Sports offers four games: 10-pin bowling, darts, air hockey and Ping-Pong. While the only muscles that will get any exercise are those in your joystick hand, each sport lets you play against the computer or a friend. For private practice, bowling and darts provide solitaire modes. The sound effects are consistently realistic and the graphics excellent (darts is played in your living room complete with a fireplace and sleeping cat).

In the first event, bowling, you must position your bowler on the lane, line up the aiming arrow, release the ball at the proper moment in the bowler's swing (too early and he hits his foot, too late and he falls on his face) and apply the proper amount of curve. Once the ball is on its way, your view changes, following the ball down the lane to see the outcome. Despite the attention to detail (you specify ball weight, alley slickness varies randomly), the game has an unnatural feel. You view the bowler from the side while aiming; all you see of the pins is the diagram above the alley. A more natural angle would have been a view from behind, over the bowler's shoulder.

Darts takes the over-the-shoulder perspective for the actual throw, but aiming is done on a separate screen. You determine whether the dart will land in the center of the board or to the left or right, and then set the arc and power meters. You can play a 301-, 501- or 701-point game, increase the aiming-difficulty level or specify Double On (or Off), which forces you to hit the thin outer ring of the board to enter (or exit) the game. Your overall score is based on the number of throws and time needed to reach zero.

Air hockey is also a timed game, and, despite its faults, is the best of the group. The puck floats and glances like the real thing; hard hits even push your paddle back slightly. You can set the puck speed from beginner to hyperdrive and specify ►

the computer's skill level for single-player games. Games run for 12 goals or 15 minutes. One problem with the one-player mode is that, when the computer makes a close shot in either of its own corners, it will sometimes trap the puck there in a v-shaped ricochet pattern, often until time runs out.

Both air hockey and Ping-Pong suffer because of graphic perspective. Rather than from over head, you view the tables from one end, so the far side appears narrower. This is visually nice, but the program does not seem to account for it in play; on the near end of the table you have more ground to cover in the same amount of time as the fellow on the other side. While this gives the player at the far end an advantage, you do have the option of alternating sides each game to minimize the effects in a tournament.

For me it was a toss-up as to whether bowling or Ping-Pong was more difficult. Only Ping-Pong's auto-move option saved me from dire frustration. With auto move, the computer lines up your paddle with the incoming ball, so all you have to do is swing and hit. Purists can chase the ball under their own power with manual move. You can determine your own abilities by allocating points to various skills such as smashing, backhand and reaction time.

The true test of any game is whether it's entertaining. Bowling is complicated and awkward, darts is pretty but unenthralling, air hockey is great when it doesn't lock up and Ping-Pong would probably be fun after a month or two of practice. For $49.95, I'd rather buy my own dart board and cash the rest in on quarters for the arcade's air hockey table. If you're a joystick junky or short on partners, Indoor Sports could suffice as a substitute. *($49.95, Mindscape Inc., 3444 Dundee Rd., Northbrook IL 60062, 312/480-7667. Joystick and 512K required.)*

—L. Barrett

Stellar Conflict

MOST COMPUTER GAMES are hard to learn and take too long to play. The challenge in many games is mastering mechanics, not in designing and developing strategy, and the majority require nothing more than stamina to insure success. Stellar Conflict is an exception.

Stellar Conflict is reminiscent of the strategy board games Risk and Diplomacy. One to four can play (the program will take the place of any human player). Each player starts with a home planet, and must judiciously (or audaciously) expand his control over every other planet to conquer the star system.

A star system, randomly generated by the program, consists of 28 planets. Clustered around each home planet are six other planets that vary in economic value. Every turn that one of your ships occupies a planet, you receive resource points. These points give you the ability to build starships, which you can then scatter throughout the system to gain control. The program automatically calculates your resources and builds your ships, which are tallied at the beginning of each turn. (The computer players get more ships per turn to compensate for their limited imaginations.)

To conquer a planet, simply send in an armada. If your brigade contains more ships than the defense fleet, all defending ships are destroyed. You lose ships equal to one-half the number of lost defense ships, and you capture the planet. Conversely, if one of your planets is attacked by a fleet that outnumbers your troop, you lose the planet and all defending ships.

You can attack any planet in the system from any other site; the number of turns it takes to reach your destination depends upon the distance to be traveled. You have two transit modes: Superspace and Hyperspace. Superspace is twice as fast as Hyperspace, but while you can deploy up to 18 fleets in Hyperspace, you can only have two fleets in Superspace at any one time.

Most of your time is spent developing and implementing strategy. You can marshall your ships for one grand assault, chip away one planet at a time, let your opponents come to you (hoping they attack with inferior forces) or none of the above; you're not forced to adopt any one strategy. Also, the game doesn't take weeks to complete. While multiplayer mode takes longer, you can complete a solitaire game in one-half hour.

I enjoy Stellar Conflict. I think you will, too! *($39.95, PAR Software Inc., distributed by Brown-Wagh, 16795 Lark Ave., Suite 210, Los Gatos, CA 95030, 408/395-3838, 800/451-0900. 512K required.)*

—B. Ryan ■

NOW IN OUR THIRD AMIGA-ONLY YEAR!

SOFTWARE

ABACUS
- AssemPro .... *In Stock!*
- BeckerText .... Call
- Books! .... Call
- DataRetrieve .... Call
- TextPro .... Call

ABSOFT
- AC/Basic $139
- AC/Fortran $199

ACCESS SOFTWARE
- New! Echilon .... Call
- Leader Board .... $ 27
- New! Lipstick Plus .... $ 19
- Tournament Disk ..... $ 14

ACCOLADE
- Famous Courses 2 ... $ 17
- Fight Night .... Call
- New! Graphic Studio .... $ 43
- Hard Ball .... Call
- Mean 18 .... $ 27
- Test Drive .... $ 31

ACS
- Brush Works 1 or 2 ... $ 24
- EFX $225
- Grade Manager .... $ 69
- Music Student .... Call
- Quickmerge .... $ 44
- QuizMaster .... Call
- Station Manager ...... Call

ACTIVISION
- Beyond Zork .... $ 35
- Game-★ Basketb. .... $ 29
- Game-★ Baseball .... $ 29
- Game-★ Golf .... $ 29
- Game-★ Football .... $ 29
- GB Air Rally .... $ 28
- Infocom Titles!! .... Call
- Little Comp. People ... Call
- Lurking Horror .... $ 29
- Music Studio .... $ 38
- Portal .... $ 29
- Shanghai .... $ 29
- ToneTown .... $ 29

ADDISON-WESLEY
- Hardware Manual ..... Call
- Intuition Manual .... Call
- Puppy Love .... $ 24
- Rom Kernal Manual .... Call
- Rom Exec Manual .... Call

AEGIS
- Animator/Images .... $ 84
- Art Disk .... $ 24
- Arazok's Tomb .... $ 32
- Audiomaster .... $ 43
- Diga .... $ 56
- Draw Plus $149
- Images .... $ 26
- Impact .... $ 54
- New! Port Of Call .... $ 36
- Sonic .... $ 49
- Videoscape 3D $129
- Video Titler .... Call

ANCO
- New! BMX Challenge .... $ 19
- New! Flight Path 737 .... $ 19
- New! Grid Start .... $ 19
- New! Harrier Mission .... $ 19
- New! Las Vegas .... $ 19
- New! Sky Fighter .... $ 19
- New! XR35 .... $ 19

APPLIED VISIONS
- New! Sargon III .... $ 38

ARTWORX
- Bridge 5.0 .... Call
- New! Centerfold Squares ... $ 25
- Linkword Languages .... $ 24
- Strip Poker .... $ 32
- S.P. Data Disk #4 .... $ 15
- S.P. Data Disk #5 .... $ 15
- New! Thai Boxing .... $ 17

ASDG
- FACC II .... $ 27

AVANT GARDE
- New! Benchmark Mod.2 ... $139
- New! Libraries .... $ 74

BANTAM
- AmigaDOS Express $ 25
- DOS Manuals .... $ 22

BAUDVILLE
- Award Maker .... $ 39
- Video Vegas .... $ 29

B.E.S.T.
- Business Mgmt. $319
- General Ledger .... $ 79

BLANK SOFTWARE
- New! Sound Lab .... Call

BROWN WAGH
- New! Express Paint .... Call (New Version!!)
- Publisher+ .... Call
- New! Softwood File IIsg .... $ 74
- New! Stellar Conflict .... $ 29
- TV Show .... $ 74
- TV Text .... $ 69
- New! WordPlex .... $ 25
- New! Write & File .... $ 79
- Zuma Fonts (ea.) ..... $ 26

BYTE BY BYTE
- Animate 3-D .... Call
- InfoMinder .... $ 69
- Sculpt 3-D .... Call

CAPILANO
- Logic Works .... Call

CENTRAL COAST
- DISK-2-DISK ...... *In Stock!*
- DOS-2-DOS .... $ 39
- Precisely .... $ 64
- Quarterback .... $ 54

COMMAND SIMULATIONS
- Blitzkrieg .... Call

COMPUMED
- Hacker Package ...... $ 34
- Mirror .... $ 34

CONSTELLATION SOFTW.
- New! *All Titles* .... Call

COSMI
- Super Huey .... $ 26

CREATIVE SOLUTIONS
- MultiForth .... Call

CRYSTAL ROSE
- Analytic Art .... $ 44

DELTA RESEARCH
- J-Forth .... $ 89

DIGITAL CREATIONS
- D'Buddy .... $ 58
- Digital Link .... $ 49
- Gizmos 2.0 .... Call

DIGITAL SOLUTIONS
- LPD Series .... Call
- LPD Writer .... *In Stock!*

DISCOVERY
- Amnix .... Call
- Arkanoid .... Call
- DX Series .... Call
- Grabbit .... $ 24
- Marauder II .... $ 25

EAGLE TREE
- Butcher 2.0 .... $ 25

EIDERSOFT
- New! Amiga Karate .... $ 24

EPYX
- California Games ..... $ 29
- Destroyer .... $ 29
- New! Dive Bomber .... $ 29
- New! 4x4 Off Road Race ... $ 29
- Rogue .... $ 25
- New! Street Cat .... $ 19
- Sub Battle .... $ 29
- Summer Games ...... $ 25
- Temples of Apshai $ 25
- World Games .... $ 25

EQUAL PLUS
- Financial Plus $188

ESCAPE SEQUENCE
- New! Photosynthesis .... Call

FINALLY TECHNOLOGIES
- Animotion .... $ 74
- Dr. Xes .... $ 37
- Nancy .... $ 45
- Phasar .... $ 61
- Senor Tutor .... Call
- Talker .... $ 46

FIREBIRD
- Guild of Thieves ...... $ 32
- Golden Path .... $ 35
- Jewel of Darkness .... $ 25
- Knight Orc .... $ 34
- Pawn .... $ 32
- Silicon Dreams .... $ 25
- StarGlider .... Call

FIRST BYTE
- 1st Letters & Wrds .... $ 36
- First Shapes .... $ 34
- Kid Talk .... $ 34
- Math Talk .... $ 34
- Math Talk Fractions ... Call
- Smoothtalker .... $ 36
- Speller Bee .... $ 34

FULLER COMPUTER
- New! Project D .... $ 37

FUTUREWORKS
- LexCheck .... $ 34

GIMPEL
- Lint .... $ 85

GOLD DISK
- Color Separator .... Call
- Comic Setter .... $ 74
- Font Set 1 .... $ 26
- Gold Spell .... $ 34
- Laser Script .... $ 35
- Page Setter .... $ 94
- Prof. Page Setter ..... Call

HAITEX
- HiCalc .... $ 44

HASH
- Animator Apprent. .... Call
- Animator Appr. Jr. .... Call
- New! Animator Flipper ...... $ 29
- New! Shape Libraries .... Call

HILTON ANDROID
- New! Aesop's Fables .... $ 19
- New! Chicken Little .... $ 24
- New! Little Red Hen .... $ 24
- New! Three Little Pigs ...... $ 24

HYPERTEK
- New! GOMF .... Call

IMPULSE
- Prism .... $ 49
- Silver $119

INFINITY
- Galileo .... $ 49
- Galileo II .... Call
- Go .... Call
- Grand Slam Tennis ... $ 38
- Hot Licks .... $ 37
- Shakespeare .... Call

INNOVISION
- New! Video Effects 3D ...... Call

INOVATRONICS
- CAPE 68K .... Call
- InovaTools 1 .... Call
- Power Windows .... $ 65

INTELLIGENT MEMORY
- Emmetic Skimmer ... $ 27
- Galaxy Fight .... $ 35
- Garrison .... Call
- Mousetrap .... $ 22
- Witchcraft .... $ 35

INTERACTIVE SOFTWORKS
- Calligrapher .... $ 79
- Newsletter Fonts .... $ 25
- Studio Fonts .... $ 25

ISM
- Surgeon .... $ 39

JAGWARE
- Alien Fires .... Call

JDK IMAGES
- Pro Video CGI .... Call
- New! Pro Video Plus .... Call
- Font Library 1 .... $ 79
- Font Library 2 .... $ 79

JENDAY
- Conv. w/Comp. ...... $ 24

JHM
- Talking Color Book $ 24

KARA
- New! Kara Fonts .... $ 54

LAMPLIGHTER SOFTWARE
- New! dbProfessional .... Call

LATTICE
- C – Regular $163
- C – Professional $284
- dbC III Library $119
- Other Products .... Call

LIGHTNING SOFTWARE
- Big Picture .... Call

LION'S AMIGA ART STUDIO
- Font Sets 1 & 2 ...... $ 25
- Newsletter Fonts .... $ 25

LYNN'S LUNA C
- New! WBExtras .... Call

MANX
- Aztec C – Devel. $199
- Aztec C – Prof. $149
- New! Library Source .... Call
- Source Levl Debug'r ... Call

MERIDIEN SOFTWARE
- New! Demonstrator .... $ 27
- Zing .... $ 49
- Zing Keys .... $ 36
- Zing Spell .... $ 38

METACOMCO
- Assembler .... Call
- Lisp $154
- Make .... $ 57
- Pascal .... $ 68
- Shell .... $ 45
- Toolkit .... $ 35

METADIGM
- MetaScope .... $ 79

MICHTRON
- Air Ball .... $ 28
- Cashman .... $ 24
- Gold Runner .... $ 28
- Karate Kid II .... $ 28
- Time Bandits .... $ 28

MICRO ILLUSIONS
- Black Jack Acad. ..... $ 29
- CAD System .... Call
- Discovery Data Disks ... *Now Available!*
- Dynamic Word $139
- Discovery .... $ 25
- Fairy Tale Adv. ... *In Stock!*
- Fire Power .... $ 19
- Galactic Invasion ..... $ 19
- Land of Legends ..... $ 37
- Music X $219
- New! Photon Paint .... Call
- Photon Video .... Call
- Planetarium .... $ 51
- Romant. Encountr .... $ 29
- Turbo .... $ 19

MICRO MAGIC
- Forms in Flight .... $ 69

MICROPROSE
- Gunship .... $ 28
- Silent Service .... $ 24

MICROSEARCH
- City Desk $110
- Desktop Artist #1 ...... $ 23
- Head Coach .... $ 39

MICROSMITHS
- New! TxED Plus .... Call

MICROSYSTEMS SOFTWARE
- Analyze 2.0 .... $ 74
- BBS-PC .... $ 62
- New! Excellence .... Call
- Flipside .... $ 31
- On-line .... $ 42
- Organize .... $ 63
- Scribble .... $ 61
- Works $131

MIMETICS
- Soundscp Pro Midi ... $130
- Soundscape Util#1 ... $ 39

MINDSCAPE
- Balance of Power .... $ 31
- New! Block Buster .... $ 37
- Bratacus .... $ 32
- Defender of Crown ... $ 31
- Deja Vu .... $ 32
- Gauntlet .... Call
- Halley Project .... $ 30
- New! Harrier Combat .... $ 37
- High Roller .... Call
- New! Ice Hockey .... Call
- Indoor Sports .... $ 35
- Into Eagle's Nest ..... Call
- Keyboard Cadet .... Call
- King of Chicago .... $ 34
- Plutos .... Call
- Q-Ball .... $ 22
- Racter .... $ 28
- Rocket Ranger .... Call
- SAT Preparation .... $ 52
- S.D.I. .... $ 31
- Shadowgate .... $ 35
- Sinbad .... $ 31
- Three Stooges .... Call
- Uninvited .... $ 31

MINDWARE
- Descartes .... $ 26
- Holmes .... $ 37
- Page Flipper .... $ 39

NEW HORIZONS
- Flow .... $ 69
- ProWrite .... $ 75

NEWTEK
- A500 Adapter .... $ 20
- Digi-Adapter .... Call
- Digi-Droid .... $ 74
- Digi-Paint .... $ 49
- Digi-View 2.0 .... $146
- Video Toaster .... Call

NEW WAVE
- Dynamic Drums ...... $ 59

NIMBUS
- Accounting .... $ 99

OMNITREND
- New! Breach .... $ 29
- Breach Scenario Disk .... $ 19 (New!)

ORIGIN SYSTEMS
- AutoDuel .... $ 35
- Moebius .... $ 38
- Ogre .... Call
- Ultima III .... Call
- Ultima IV .... Call

OPCODE SYSTEMS
- Music Mouse .... $ 66

OXXI
- New! A-Talk II .... Call
- Encore .... $ 29
- Maxiplan .... $ 99
- Maxiplan Plus $127
- WOW .... $ 29

PDJ SOFTWARE
- AiRT .... Call

POLYGLOT SOFTWARE
- Crossword Creator ... $ 38
- Dominoes .... $ 19

PROFESSIONAL SOFTWARE
- Fleet Check .... Call

PROGRESSIVE
- CLI-Mate .... $ 25
- New! Dr. Term Prof. .... $ 79
- IntroCad .... $ 63
- Logistix .... $ 85
- MicroLawyer .... Call
- PixMate .... $ 54
- Superbase .... $ 81
- Superbase Prof. .... Call
- Vizawrite .... $ 81

PROLIFIC INC.
- Pro-ASM .... $ 73
- Pro-Board .... Call
- Pro-Net .... Call

PSYGNOSIS
- New! Arena .... $ 16
- Barbarian .... $ 28
- Terror Pods .... $ 28

READY SOFT
- The 64 Emulator ...... Call

RIGHT ANSWERS GROUP
- Director .... Call

SEDONA
- Money Mentor .... $ 74

SEVEN SEAS
- Doug's Math Aquar. .. $ 59

SIS
- C64 Emulator .... Call

SLIPPED DISK
- Investor's Advantage $ 77

SOFT LOGIK CORP.
- Publishing Partner .... Call

SOFT TOUCH
- Custom Screens ...... $ 49
- Paymaster Plus $109

SOFTWARE TERMINAL
- Telegames .... $ 26
- New! Telewars .... Call

SOFTWARE VISIONS
- MicroFiche Filer .... $ 79

SPENCER ORGANIZATION
- New! APL 68000 .... Call

SSI
- Kampfgruppe .... $ 46
- Phantasie .... Call
- Roadwar Europa ...... $ 31
- Road War 2000 .... $ 32
- Wrath of Nicode. ..... Call

SUBLOGIC
- Flight Simulator .... $ 32
- Jet .... Call
- Scenery Disk #7 ...... $ 18
- Scenery Disk #11 .... $ 20

SUNRIZE INDUSTRIES
- Perfect Vision .... Call
- Studio Magic .... $ 75

SYNDESIS
- Interchange .... Call

TAURUS
- Acquisition .... Call
- X-CAD Designer .... Call

TDI
- *All Products Available*
- Modula II/Comm. $207
- Modula II/Devel. $109
- Modula II/Reg. .... $ 64

THE DISC COMPANY
- New! Kind Words .... $ 74

THE OTHER GUYS
- Match-It .... $ 29
- Omega File .... $ 60
- Promise Spell ✓er ... $ 39
- Reason .... Call
- Synthia .... Call

THREE SIXTY SOFTWARE
- New! Dark Castles .... $ 24

TIGRESS
- Diskwik .... $ 36

TOP DOWN
- New! FootMan .... Call
- New! Vyper .... $ 24

TRUE BASIC, INC.
- True Basic .... $ 74
- 9 Libraries (each) .... $ 39
- Runtime $109

UNICORN
- Adv. of Sinbad .... $ 35
- Aesop's Fables .... $ 35
- Animal Kingdom ...... $ 35
- Arabian Nights .... $ 35
- Decimal Dungeon .... $ 33
- Fraction Action .... $ 33
- Kinderama .... $ 33
- Logic Master .... $ 35
- Magical Myths .... $ 35
- Math Wizard .... $ 35
- Read & Rhyme .... $ 33
- Read-A-Rama .... $ 35
- The Word Master ..... $ 35

UNISON WORLD
- Art Gallery I, II .... $ 20
- Printmaster Plus ...... $ 33

VIP TECHNOLOGY
- Professional $114

VISUAL AURAL
- New! Mindlight 7 .... Call

WESTCOM
- ADFO .... $ 45
- Hardhat .... $ 55

WORDPERFECT INC.
- WordPerfect .... Call

ZEN SOFTWARE
- System Monitor .... $ 39

ZIRKONICS
- Prof. Text Engine ...... $ 80

HARDWARE

ACCESS ASSOCIATES
- Alegra 512K .... Call

AMAZING DEVICES
- Time Lord .... $ 34
- Progr's Reference .... $ 15

ANAKIN
- Easyl $399
- Easyl 500/2000 .... Call

ANCHOR AUTOMATION
- Omega 80 .... $165

APPLIED VISIONS
- Futuresound $144

ASDG
- New! RAM Boards/Boxes ... Call

AVATEX
- 1200HC Modem $115

BYTE BY BYTE
- Byte Box A500 ... *In Stock!*
- TIC .... $ 49

C. LTD.
- New! C View Cables .... $ 39
- Timesaver .... $ 64

CSA
- Accelerators .... Call

CREATIVE MICROSYSTEMS
- Kickstart Elimin. $109
- RF Modulator A500 ... Call

DIGITAL CREATIONS
- SuperGen .... Call

ECE
- MIDI-500 .... Call

EPSON
- EX-800 .... Call

EXPANSION TECHNOLOGIES
- Escort 500 .... Call

FINALLY TECHNOLOGIES
- Hurricane Accel. .... Call
- *works w/ A500, 1000, 2000*

FUJI
- 10 D-S Disks $19.99
- *Free disk case w/ every box!*

GO AMIGA
- Printer Cables .... $ 25
- Modem Cables .... $ 25
- Disk Head Cleaner .... $ 15
- 30-Disk Case .... $ 10
- Mousepad .... $ 10
- Sony Monitor Cable $ 35

GOLDEN HAWK TECH.
- MIDI Gold .... $ 69

GRAB, INC.
- LIVE! by A-Squared ... Call

GREAT VALLEY PRODUCTS
- New! SCSI Controller with RAM .... Call

INKWELL
- New! Light Pen .... $ 99

KETEK
- New! A500 Command Ctr. ... Call

MICHIGAN SOFTWARE
- A500 Expansion .... Call
- Drive Ext. Cables ..... Call
- Insider .... Call
- Multi-Start .... Call
- Quickstart $149

MICROBOTICS
- A2000 Adapter .... Call
- A2000 Products .... Call
- Multifunction .... Call
- Starboard 2MB .... Call
- Starboard2/A500 .... Call
- *Other Sizes Available*

MICRON TECHNOLOGIES
- Memory Boards .... Call

MICROWAY
- New! Flicker Fixer .... Call

MIMETICS
- AmiGen Genlock $157
- Audio Digitizer .... Call
- Frame Butter .... Call
- MIDI Interface .... $ 45

OKIDATA
- Oki20 Col. Ribbon .... $ 10
- Oki20 Blk Ribbon .... $ 9
- Okimate 20 with Plug n' Play $199

PACIFIC PERIPHERALS
- New! OverDrive .... Call
- SubSystem .... Call

PANASONIC
- Camera/Lens for DigiView .... Call
- 1080i Mk II Printer ... Call
- 1091i Mk II Printer ... Call

PHOENIX
- A500, A1000 H/Drives Call
- CPS500 Pwr Supply ... $ 84

PROGRESSIVE
- ProDrive External $199
- ProDrive f. A2000 ..... Call
- ProGen .... Call

SCI-TECH
- New! GenKey .... Call

SONIC
- Speakers w/ Amp .... $ 89

SPIRIT TECHNOLOGIES
- 1.5MB for A1000 ...... $489
- A500 Expansion ...... Call

SUN-RIZE
- Perfect Sound .... $ 69
- Perfect Vision $189

SUPRA CORP.
- 2400 Baud Modem ... Call
- Hard Drives .... Call

XEBEC
- 9720H 20MB Drive ... $799

XEROX
- 4020 Color Ink Jet ... Call

This is a selection from the over 825 Amiga products we have in stock. New products arrive every day — please call for latest price and availability information.

Orders Only: **800-BE-AMIGA**™

In California: **800-843-2842**

Customer Service: **415-322-0686**

Telex: **981975 ab:GO AMIGO** *FAX:* **415-322-5356** *EasyLink:* **62044782**

MasterCard VISA

Send Mail Orders to: **GO AMIGO** 508 Waverley St., Palo Alto, CA 94301
(Money Order, Cashier's Check, or Qualified P.O. only. CA residents add sales tax.)

SHIPPING INFO: Software Shipping rates are $2.50/item using UPS Ground service (max. $7.50) or $4.50/item using UPS 2nd Day Air Service (max. $13.50). Other shipping methods available. Call for hardware rates. APO, Mail, foreign shipping extra. Call for more info. **RETURN & REFUND POLICY:** All returns must have an RMA-#. Call Customer Service to request an RMA-#. Defective merchandise under warranty will be repaired or replaced. Returned product must be returned postage prepaid with all original packaging. We do not offer refunds for defective products or for products that do not perform satisfactorily. We make no guarantees for product performance. Any money back guarantees must be handled directly with the manufacturer. **OTHER POLICIES:** We do not charge your card until the product actually ships. Purchase order customers must have credit application on file. No surcharge for VISA and MasterCard. When ordering with credit card, *PLEASE* include expiration date and name of bank!

Amiga is a trademark of Commodore-Amiga. Go Amigo is in no way associated with Commodore-Amiga.
Delivery subject to product availability • Prices subject to change • **Circle 26 on Reader Service Card**

WHAT'S NEW?

"The more head downwards I am . . . " Alice's White Knight exclaimed,

"The more I keep inventing new things," the Amiga developers joined in.

Compiled by Barbara Gefvert

IMAGE-OLOGY

WHO SAYS YOU need chlorophyll and light to produce **PhotoSynthesis**? All you really need is your Amiga and a $149.95 check made out to Escape Sequences Inc., the publisher of this new full-image-processing program. PhotoSynthesis processes 320 × 200 signed and unsigned images up to a depth of 16 bits, and you can hold four images in the system at once with just one megabyte of RAM. If the more than 40 basic image-processing operations aren't enough, you can program others with the included interpreted language that incorporates looping, conditionals, tests and script files. Contact Escape Sequences at PO Box 1101, Troy, NY 12180, 518/274-1547.

RACE OR FIGHT

GET REVVED UP with two new games from Anco. You can drop behind the wheel of a six-gear Formula-1 car and speed around world-famous circuits like Monza, Brands Hatch and Silverstone in **Grid Start**. Practice at the novice level, progress to amateur and, when you're ready, compete for the championship against 23 other drivers as a pro. **Karting Grand Prix** allows you to select driving conditions, sprocket size, type of tires and more, and then compete head-to-head or against the computer cars at three skill levels.

Strap on your black belt and boot up Eidersoft's **Amiga Karate**, the martial arts game that features animated graphics, digitized stereo sound and—ouch!—realistic fighting. Driver or fighter, the entry fee is $24.95. Contact Anco Software/Eidersoft USA at PO Box 288, Burgettstown, PA 15021, 412/947-3739.

IN SO MANY WORDS

WHAT'S BETTER THAN good? It could be **Excellence!**, the what-you-see-is-what-you-get word processor from the makers of Scribble! The not-so-modest program features PostScript laser-printer compatibility as well as mail merge, four types of paragraph alignment, fast screen update, many fonts (including superscript and subscript), IFF graphics and text support, and the ability to resize and crop pictures. $299.95 also gets you the 90,000-word customizable spelling checker, a grammatical checker, a thesaurus, clipboard support and a zoom gadget for resizing windows. Micro-Systems Software's distributor, Brown-Wagh, will be happy to boast about all the features: 16795 Lark Ave., Suite 210, Los Gatos, CA 95030, 408/395-3838.



PostScript compatibility equals text-and-graphic versatility.

NOTE-ABLE ARCHIVE

THE **FB-01 DATAFILER** provides complete access to all of the Yamaha FB-01's resources, including those unavailable from the front panel. You can edit, organize and document both voices and configurations. The program graphically presents and updates envelopes and algorithms, and you can change parameters via alpha-numeric entry, slider gadgets, or by using the mouse. You can audition edits as you make them in three different ways, too. The Datafiler supports full-printer output, as well as voice swapping (original voices are supplied), and you can multitask with most sequencers. The Datafiler is priced at $90 (add $2.50 for mail orders) from Triangle Audio, PO Box 1108, Sterling, VA 22170, 703/437-5162. ►

UPGRADING TO AN AMIGA™?



NOW

THE 64 EMULATOR 2 LEADS THE WAY!

Take your peripherals with you...

Not only can you use your Commodore 64 drives and printers during 64 emulation, but now you can save hundreds of dollars by making your 64 printer Amiga-compatible! The 64 Emulator 2 includes drivers for most popular printers so you can use your favorite Amiga software without having to buy a new printer.

Take your data with you...

The easy to use transfer software makes moving 64 data to Amiga disks a snap! Use your 1541 or 1571 with the Serial Interface to copy files or whole disks of information easily and quickly. You can even read 1581 disks on regular Amiga drives and 1541/1571 disks on Amiga 5¼" drives! Now when you move up to an Amiga you don't have to give up your valuable 64 data.

Take your software with you...

Written in 100% 68000 machine code for maximum speed, The 64 Emulator 2 takes full advantage of your Amiga's hardware to support all aspects of the Commodore 64 including sound and color when running 64 software. The 64 Emulator 2 runs most productivity and educational software, and even some games! Some programs may run slower with The 64 Emulator 2 than on a Commodore 64, but a monochrome mode allows you to turn off color for increased speed.

The 64 Emulator 2 not only emulates a Commodore 64, but also emulates the 1350 and 1351 mouse (with the Amiga mouse), the 1764 RAM Expander (with 1 MegaByte or more), and supports all Amiga disk drives, modems, printers, and some hard drives.

Take us with you...

You could go out and buy hardware to use your 64 peripherals, programs to transfer your 64 data, and a whole new library of Amiga software. But why? The 64 Emulator 2 gives you all this in one package for much less.

NEW FEATURES IN VERSION 2

- ☐ Supports 64 printers from Amiga software
- ☐ "Freeze" option to transfer protected software to Amiga disks
- ☐ Reads 1581 disks on Amiga 3½" drives
- ☐ Reads 1541/1571 disks on Amiga 5¼" drives
- ☐ Supports all 68010s and some 68020s.
- ☐ Includes BASIC 4.0 and invisible M/L Monitor
- ☐ Increased compatibility with protected software
- ☐ Improved raster interrupts and sprites
- ☐ All new transfer software

REGISTERED OWNERS

All registered owners of The 64 Emulator version 1 may send their original disk and $10 to receive version 2, or send $13 to receive version 2 on a new disk.

SPECIAL OFFER TO GO-64! OWNERS:

Send in your original GO-64! disk and receive $20 off the purchase price of The 64 Emulator 2 with Serial Interface when ordering directly from ReadySoft Inc.

Circle 24 on Reader Service card.

YES

I want to use the thousands of Commodore 64 programs on my AMIGA.

Please rush me:
☐The 64 Emulator 2 @ $39.95 ($49.95 Cdn.)
☐The 64 Emulator 2 with Serial Interface @ $59.95 ($79.95 Cdn.)

I own: (please specify computer below)
☐Amiga 500 ☐Amiga 1000 ☐Amiga 2000

Payment by ☐Check ☐Money Order ☐Visa ☐Mastercard

Card #

Expiry date Signature

Please add $4.00 for shipping and handling
Ontario residents please add 7% P.S.T.
No C.O.D. please.

Name:

Address:

City/Town:

State: Zip:

ReadySoft Inc.

ReadySoft Inc.,
P.O. Box 1222,
Lewiston, N.Y.
14092

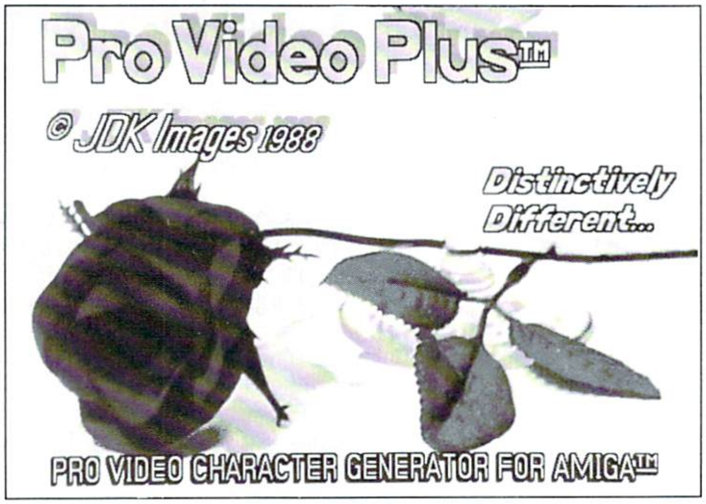
Phone Orders: (416) 731-4175

Please have credit card number ready.

Dealer Inquiries invited

A Plus For Pros

A CHARACTER GENERATOR for professionals, **Pro Video Plus** runs only in hi-res graphic mode with an expanded screen size of 672 horizontal pixels by 440 scan lines. Four video font styles are provided in four sizes, and you can add italic, multicolor and other effects. Pro Video Plus enables you to create 2600 pages of video titles and add text and graphic backgrounds (up to 100 IFF images). For $299.95, the program offers over 90 real-time page transitions plus independent line moves and custom transitions. Contact PVS Publishing, 3800 Botticelli, Suite 40, Lake Oswego, OR 97035, 503/636-8677.



RAM wanted: 410K chip, two megabytes fast.

Fine-Tuned Printing

FINEPRINT ALLOWS YOUR dot-matrix printer to build up ink in such a way that images print in multiple shades of gray. As many as 15 dots will print on top of each other for every pixel, the result being a near-photographic image. The program also allows you to scale images to produce printouts ranging from less than one inch square to over 10 stories in height. While it won't print colors or work with HAM-mode images, it will work with any size IFF image with up to 32 colors of any aspect ratio. The $49.95 package includes a mode to let you design patterns to fill the areas of your print. Contact Designlab to see if FinePrint supports your printer: PO Box 419, Owego, NY 13827.

Toolin' Intuition

FIRST IN A series of subroutine programs from the Inovatronics team is **Inovatools I**, Intuition enhancement libraries. The functions, which include pop-up menus, circular-knob gadgets (to replace proportional) and drag gadgets, routines for palette editing, list handling and Mac-like zoom window open/close, are offered in both AmigaDOS system-libraries (accessible from any language) and linkable-C libraries forms. The package is $79.95. Call Inovatronics for further details: 11311 Stemmons Frwy., Suite 8, Dallas, TX 75229, 214/241-9515.

THE DEVIL AND THE DEEP 3-D

MIMETICS PURPORTS THAT **3-Demon** is fiendishly powerful, yet easy to use. The program aids you in creating images for use with popular 3-D rendering software, employing an intuitive what-you-see-is-what-you-get approach. You can also import objects from your 3-D software, then modify and convert them to any of the other file formats supported. Almost all functions can be accomplished with the mouse. You can view images in wire frame, colored solids, "fish-eye," shift or other modes, and from any angle. 3-Demon supports sophisticated hierarchial objects, too. You can add a multitude of surfaces to your objects, drawing from the library of spheres, cones and more, and designate any of the 4,096 colors for each surface, then assign it reflective and refractive properties. Feeling devilishly creative? Then send $99.95 to Mimetics Corporation, PO Box 1560, Cupertino, CA 94306, 408/741-0117.

C THE LIGHT

FEATURING A completely intuition-based interface, **C-Light** is a new 3-D ray-tracing program. You construct images by placing any one of 170 primitive objects (cubes, spheres and cylinders) onto the screen, and then adjusting them in three dimensions—similar to playing with building blocks that can be stretched, squashed and twisted. You can select up to 170 light sources as well as color, mirrored surfaces and shadows. Pictures can be saved in IFF format (including overscan and interlaced modes) and you can display them with the picture viewer included, or use them in paint or animation programs. Get your full-featured disk for $59.95, or a demo for $5 from Ronald Peterson, PO Box 614, Milford, NH 03055.

ONE-MEG PARTNERS

"MEMORY'S THE WORD!" announced the newly-configured **single-slot Micron Amiga chassis,** waving his proprietary interconnect card and swinging his wall-mount power supply cord. "Yeah," muttered his sidekick, the **one-megabyte board.** "Everybody has a price," the board continued. "Mine is $395, but you can get both of us for $500." While the chassis touted his ability to pass through the bus (where he connects to the A1000 and the A500), the board cut in, bragging about his ability to get along without the chassis in the A2000. Pouting, the chassis started off toward home: 2805 E. Columbia, Boise, ID 83706, 208/386-3800.

SHIP SHAPE

YOU, AS OWNER of an international shipping company, must span the globe for wealth and adventure in **Ports of Call**. The game combines adventure strategy with arcade-like interaction and exciting graphics. Expand your horizons by calling Aegis Development, 2210 Wilshire Blvd., Suite 227, Santa Monica, CA 90403, 213/392-9972, 800/345-9871.

ED-LIB IT

THE **YAMAHA TX81Z editor/librarian** allows editing of all TX features using the Amiga, and offers an interactive voice edit. You can get a copy for $79 from MidiTalk, PO Box 69, Albany, NY 12260. ►

INNER DRIVE

INNER CONNECTION INC. aims to turn your A2000 or A1000 into the ideal interactive video and graphics workstation with its release of the **20MB 5¼ Bernoulli Drive** with onboard SCSI controller. While Inner Connection admits that the price appears high ($1695 for the A2000, $1795 for the A1000), they say that because you can add any number of 20MB cartridges, the cost per megabyte is actually low. They also promise no head crashes, and an average access time of 40ms. You can have your choice of sectoring options: 100 percent AmigaDOS, or 25/75, 50/50 or 75/25 MS-DOS. While the Amiga 2090 controller card will not work with the drive, a number of other SCSI cards can serve as host interface. Call or write Inner Connection for further details: 12310 Brandywine Rd., Brandywine, MD 20613, 301/372-8071 or 800/634-4989.

FROM THE DRAWING BOARD

ALREADY POPULAR IN the computer graphics and CAD industries, SummaSketch drawing tablets are now available for the Amiga with industry-standard MM-format software drivers. The tablets are available with either a 12-inch square or a nine-by-six-inch active area, and in drawing or CAD format. **AProDraw** packages come with a tablet ($549 for the large tablet, $449 for the small), power supply, software and a two-button stylus that fully emulates the mouse. **AProCAD** ($599 and $499) includes a four-button puck with cross hair as well. R&DL Productions, 11-24 46th Ave. 2A, Long Island City, NY 11101, 718/392-4090.

STEP INTO THE STUDIO

WHETHER YOU'RE A novice or a pro, Accolade has a new **Graphics Studio** for you. The rent is $59.95, and includes utilities such as double-screen size drawing area plus a full-screen clipboard, compatibility with all font options and a user-programmable color-cycling tool. Also included are various drawing tools, single-color and pattern fills, a zoom option and the ability to pick up any image (or portion thereof) and resize, flip or rotate it, display its coordinates, change the 4,096-color palette and manipulate it in other ways. Use The Graphics Studio to draw from a comprehensive pattern library, add automatic drop shadows or text (in different sizes and styles with effects), then save or print your creations. Contact Accolade, 20813 Stevens Creek Boulevard, Cupertino, CA 95014, 408/446-5757.

HOT CROSS ASSEMBLERS

FULL-FEATURED MACRO cross-assemblers are available for the Z80 and 6809 families in **Pro-Asm** packages from Prolific. Included in each are a multi-pass assembler, linker and downloader. The Pro-Asm programs support nested macros, include files, conditional assembly, global and external variables, and numerous directives. Download formats include binary, Motorola Hex, Intel Hex and Tektronix Hex. The assemblers are $85 each from Prolific Inc., 1808 W. Southgate Ave., Fullerton, CA 92633, 714/447-8792. ►

WE SELL THE BEST - FOR LESS!

SOFTWARE

ABACUS
- Assempro $60
- Becker $90
- Data Retrieve $48
- Text Pro $48

ABSOFT
- AC/Basic $117
- AC/Fortran $180

ACCESS SOFTWARE
- Leader Board $24
- Tournament Disk $12

ACCOLADE
- Mean 18 $27
- Famous Courses Vol. 2 $12
- ✓ Fright Night Call
- ✓ Graphic Studio $36
- Hard Ball $27
- Test Drive $27

ACTIVISION
- Game-★ Basketball $27
- Game-★ Baseball $27
- Game-★ Golf $27
- Game-★ Football $27
- GB Air Rally $24
- Hacker Call
- Hacker II Call
- Infocom Titles!! 40% Off
- Lurking Horror $24
- Music Studio $30
- Portal $30
- Shanghai $24

ADDISON-WESLEY
- Hardware Manual $20
- Intuition Manual $20
- Rom Kernal Manual $24
- Rom Manual Exec $16

AEGIS
- Animator/Images $84
- Art Disk $24
- Arazok's Tomb $30
- ✓ Audiomaster $36
- Diga $48
- Draw $75
- Draw Plus $149
- Images $24
- Impact $54
- ✓ Port of Call $24
- Sonic $48
- Videoscape 3D $120
- ✓ Video Titler Call

AMIGA
- Assembler $60
- Amiga C $90
- 1.2 Enhancer 10
- Graphic Craft $20
- Lisp $120
- MindWalker $30
- Pascal $120
- Textcraft Plus $54

APPLIED VISIONS
- ✓ Sargon III $30

ARTWORX
- ✓ Bridge 5.0 $21
- Linkword Languages $18
- Strip Poker $24
- Strp. Pokr Data Disk #4 $12

ASDG
- FACC II $21

ASO
- Brush Works (1 or 2) $18
- EFX $180

BANTAM
- AmigaDOS Express $20
- DOS Manuals $22

BAUDVILLE
- Video Vegas $24

B.E.S.T.
- Business Mgmt $265

BROWN WAGH
- Publisher Plus $60
- Softwood File IIsg $75
- ✓ TV Show $60
- TV Text $60
- Word Plex $24
- Zuma Fonts (Each) $21

BYTE BY BYTE
- Animate 3-D $95
- InfoMinder $60
- Sculpt 3-D $65

BYTE BY BYTE
- Animate 3-D $95
- InfoMinder $60
- Sculpt 3-D $65

CAPILANO
- Logic Works $60

CENTRAL COAST
- DISK 2 DISK $30
- DOS 2 DOS $33
- Precisely $60
- ✓ Quarterback $42

Cinemaware
- 3 Stooges $30
- Rocket Ranger $30

COMMAND SIMULATIONS
- ✓ Blitzkrieg $30

COSMI
- Defcom 5 $24
- Super Huey $18

CRYSTAL ROSE
- Analytic Art $36

DIGITAL CREATIONS
- Digital Link $42
- Gizmos 2.0 $42

DIGITAL SOLUTIONS
- LPD Writer $78

DISCOVERY
- ✓ Amnix $30
- Arkanoid $30
- ✓ DX Series $30
- Grabbit $18
- Marauder II $24

DISK CO.
- Kind Words $60

Dr. T Music Software
- K.C.S. $150

EAGLE TREE
- Butcher 2.0 $22

EIDERSOFT
- ✓ Amiga Karate $21

ELECTRONIC ARTS
- ✓ AAA RGH $23
- Adv. Constr. Kit $14
- Archon $14
- Archon II $14
- Artic Fox $26
- ✓ Awesome Arcade Pk. $32
- Bard's Tale $32
- ✓ Battle Droidz $23
- Black Cauldron $26
- ChessMaster 2000 $29
- Deluxe Music $62
- Deluxe Paint II $80
- Deluxe Video 1.2 $80
- ✓ Deluxe Photo Lab $62
- ✓ Deluxe Write $62
- ✓ Ferrari Formula 1 $32
- Financial Cookbk $14
- ✓ Hunt For Red Oct $32
- Instant Music $32
- King's Quest $32
- ✓ Life and Death $29
- Maxiplan Plus $120
- Marble Madness $32
- ✓ Mavis Beacon $29
- Ogre $18
- One on One $14
- ✓ Pub Games $23
- ✓ Return To Atlantis $32
- ✓ Road Wars $23
- ✓ Rockford $23
- 7 Cities of Gold $14
- Skyfox $14
- Skyfox II $26
- Starfleet I $35
- Ultima III $24
- Space Quest $32
- Lounge Lizards $32
- Earl Weaver $32

EPYX
- California Games $24
- Destroyer $24
- Rogue $24
- ✓ Street Sport Basketball $24
- Sub Battle $27
- Summer Games $24
- Temple of Apshai $24
- Winter Games $24
- World Games $24
- ✓ 4x4 Road Racing $24

EQUAL PLUS
- Financial Plus $180

FELSINA
- A-Talk Plus $70

FIREBIRD
- Golden Path $27
- Guild of Thieves $27
- Jewel of Darkness $18
- Pawn
- Knight of Orc $24
- Silicon Dreams $18
- Star Glider $27

FINALLY TECHNOLOGIES
- ✓ Animotion Call
- Talker $42
- Phasar $60
- Senor Tutor $30
- Talker $42

FIRST BYTE
- First Letters & Words $30
- First Shapes $30
- Kid Talk $30
- Mad Libs $12
- Math Talk $30
- Math Talk Fractions $30
- Smoothtalker $30
- Speller Bee $30

FUTUREWORKS
- LexCheck $26

GIMPEL
- Lint $80

GOLD DISK
- ✓ Color Separator Call
- ✓ Comic Setter $60
- Font Set 1 $25
- Gold Spell $27
- Laser Script $27
- Page Setter $90
- ✓ Prof. Page Setter $240

GRAPHIC EXPRESSIONS
- Girls $12

HAITEX
- A-DRV $48
- HiCalc $36

HASH
- Animator Apprentice $180
- ✓ Animator Apprentice Jr. Call

HYPERTEC
- GOMF $24

IMPULSE
- Prism $42
- Silver $108

INFINITY
- ✓ Grand Slam Tennis $30
- Hot Licks $30
- Shakespeare $135

INFOCOM
- Beyond Fork $30
- Sherlock Holmes $24

INOVATRONICS
- Power Windows $54

INTELLIGENT MEMORY
- Galaxy Fight $21
- Garrison $35
- Mousetrap $14

INTERACTIVE SOFTWORKS
- Calligrapher $60
- Lion Fonts $36
- Newsletter Fonts $18
- Studio Fonts $21

ISM
- Surgeon $30

JAGWARE
- Alien Fires $24

JDK IMAGES
- Pro Video CGI $120
- Font Library 1 $65
- Font Library 2 $65

JHM
- Talking Color Book $18

LATTICE
- C - Regular $147
- C - Professional $260
- dbD III Library $100

LION'S AMIGA ART STUDIO
- Font Sets 1 & 2 $25
- Newsletter Fonts $25

MANX
- Aztec C - Comm $310
- Aztec C - Devel $195
- Aztec C - Prof $130
- Source Level Debug r $49

MERIDIAN SOFTWARE
- Zing $48
- Zing Keys $30
- ✓ Zing Spell $30

METACOMCO
- Assembler $60
- Lisp 1.3 $120
- Pascal $60
- Shell $42
- Toolkit $30

METADIGM
- MetaScope Call

MICHTRON
- Air Ball $24
- Cashman $18
- Gold Runner $24
- Karate Kid II $24
- Time Bandits $24

MICRO ILLUSIONS
- Black Jack Academy $24
- Dynamic Word $120
- Disc.-Math/Spell (each) $24
- Dynamic CAD $300
- Ebon Star $24
- Faery Tale Adv $30
- Fire Power $15
- Galactic Invasion Call
- Land of Legends $30
- ✓ Music X $180
- Photon Paint $60
- ✓ Photon Video Call
- ✓ Planetarium Call
- ✓ Romantic Encounter Call
- ✓ Turbo $15

MICRO MAGIC
- Forms in Flight $60

MICROPROSE
- Silent Service $24

MICROSEARCH
- City Desk $90
- Desktop Artist #1 Call
- Head Coach $30

MICROSMITHS
- Fast Fonts $24
- TxEd $24

MICROSYSTEMS SW
- Analyze 2.0 $90
- BBS-PC $60
- Excellence! $180
- Flipside $30
- On-line $42
- Organize $60
- Scribble $60
- The Works $120

MIMETICS
- ✓ Capture $120
- 3 Demon $65
- Express Paint 2.0 Call
- ✓ Framebuffer $420
- Midi Interface $43
- Sound Sampler $80
- Pro Midi Studio $125

MINDSCAPE
- Balance of Power $30
- Bratacus $30
- Defender of Crown $30
- Deja Vu $30
- ✓ Gauntlet $30
- Halley Project $27
- ✓ Harrier Combat $30
- ✓ Impact $30
- ✓ Indoor Sports $30
- ✓ Into Eagle's Nest $30
- Keyboard Cadet $24
- King of Chicago $30
- Plutos $18
- Racter $27
- SAT Preparation $48
- S.D.I. $30
- Shadowgate $30
- Sinbad $30
- ✓ Superstar Ice Hockey $30
- Uninvited $30

MINDWARE
- Descartes Call
- Holmes Call
- Page Flipper $30

NEW HORIZONS
- Flow $60

NEWTEK
- A5000 Adapter $20
- ✓ Digi-Droid $48
- ✓ Digi-E/FX Call
- Digi-Paint $36
- Digi-View 2.0 $130

NEW WAVE
- Dynamic Drums $48

NIMBUS
- Accounting $90

NORTHEAST SOFTWARE GROUP
- Order $30
- Publish $120

ORIGIN SYSTEMS
- ✓ AutoDuel $30
- Ogre
- Moebius $36
- Ultima III
- Ultima IV $36

OXXI
- Maxiplan $90
- Maxiplan Plus $120

PECAN SOFTWARE
- UCSD Pascal $60
- Fortran 77 $60
- Basic $60
- Modula 2 $60
- Pascal Prof. $120
- Fortan Prof. $120
- Basic Prof. $120
- Modula 2 Prof. $120

PDJ SOFTWARE
- ✓ AiRT Call

POLYGLOT SOFTWARE
- Crossword Creator Call
- Dominoes Call

PROFESSIONAL SOFTWARE
- Fleet Check Call

PROGRESSIVE
- CLI-Mate $24
- ✓ IntroCad $48
- Logistix $80
- MicroLawyer $36
- ✓ PixMate $42
- Superbase $80
- ✓ Superbase Prof. $180
- Vizawrite $80

PSYGNOSIS
- Barbarian $24
- Obliterator $24
- Terror Pods $24

READY SOFT
- The 64 Emulator

RIGHT ANSWERS GROUP
- ✓ Director $42

SEDONA
- Money Mentor $60

SEVEN SEAS
- Doug's Math Aquarium

SIS
- C64 Emulator Call

Softlogic
- Galileo 2.2 $42
- Publishing Partner $120

SOFT TOUCH
- Custom Screens $42
- Paymaster Plus $90

SOFTWARE TERMINAL
- Telegames $21

SOFTWARE VISIONS
- MicroFiche Filer $60

SSI
- Kampfgruppe $36
- Phantasie $24
- Roadwar Europa $24
- Road War 2000 $24
- Wrath of Nicodemus $24

SUBLOGIC
- Flight Simulator $32
- Jet $32
- Scenery Disks (All) $17
- ✓ European Scenery $17

SUNRIZE INDUSTRIES
- Perfect Vision Call
- Studio Magic $60

SYNDESIS
- Interchange $30

TAURUS
- Acquisition $180
- ✓ X-CAD Designer $360

TDI
- *All Products Available*
- Modula II - Comm. $180
- Modula II - Devel. $90
- Modula II - Reg. $60

THE OTHER GUYS
- Match-It Call
- Omega File Call
- Promise Spell Checker Call
- Reason Call
- Synthia Call

THREE SIXTY INC.
- Dark Castle $27

TIGRESS
- Diskwik $36

TITUS
- Crazy Cars $40

TOP DOWN
- Footman $18
- Vyper $18

TRUE BASIC
- True Basic $60
- 9 Libraries (each) $30
- Runtime $90

UNICORN
- Aesop's Fables $30
- All About America $36
- Decimal Dungeon $30
- Fraction Action $30
- Ghostly Grammer $30
- Kinderama $30
- Land of the Unicorn $36
- Read & Rhyme $30
- Read-A-Rama $30
- The Word Master $30

UNISON WORLD
- Art Gallery 1,2 $18
- Printmaster Plus $30

VIP TECHNOLOGY
- Professional $90

WORDPERFECT INC.
- Word Perfect $200

DISKS

GENERIC

5¼ DS/DD ... 25¢ 200 Lot
3½ DS/DD ... 1.30 30 Lot

FUJI - MAXELL SONY - VERBATIM
3½ DS/DD
1.80 30 Lot

BASF
3½ DS/DD
1.50 30 Lot

This is a selection from the over 870 Amiga products we carry. New products arrive every day - please call for latest price and availability information.

✓ Denotes new products

Orders Only:
800-433-7756
In Michigan:
313-427-7713
Customer Service: **313-427-0267**
FAX: **313-427-7766**

MasterCard DISCOVER VISA

MCS MICROCOMPUTER SERVICES

Send Mail Orders To: **M.C.S.** 12864 Farmington Rd., Livonia, MI 48150
School P.O.'s Accepted - Call For Terms

No Surcharge for MC/VISA/DISCOVER Sorry no walk in traffic
All returns must have RA#. Merchandise found defective will be repaired or replaced. We do not offer refunds for defective products or for products that do not perform satisfactorily. We make no guarantees for product performance. Any money back guarantee must be handled directly with the manufacturer. Call for shipping & handling info. Prices subject to change without notice.
12864 FARMINGTON ROAD, LIVONIA, MI 48150
We cannot guarantee compatibility.

Circle 44 on Reader Service card.

DEALER INQUIRIES INVITED

Storage And Speed

WITH ITS NEW line of tape-stream backup systems, Computer System Associates (CSA) promises an economical means of protecting programs and fast transfer of data from standard SCSI hard drives. The tape streamers can also transfer files from hard disk to CSA's removable tape cartridges. Various configurations are available and start at $1595. The **HalfBac-40** and **HalfBac-40X** drives provide 40MB of storage in internal and external half-height 3½-inch forms, respectively. **FullBac** is an internal, full-height 5¼-inch 40-meg drive, and the **BacPac** combination includes a 40-megabyte tape-stream system and a CSA 40MB hard drive with its own power supply and switch.

Also new is the **WORM-800** (Write Once Read Many) optical disk drive that uses front loading, removable, double-sided optical-disk cartridges. The unit allows 800 megabytes of inexpensive, non-alterable storage, and is packaged in a standard 5¼ form that will mount internally in the A2000. Prices start at $5995.

The **OVER 030** accelerator board accommodates Motorola's new 68030 32-bit processor with onboard memory management and 68882 math coprocessor. It's been said that the Motorola release is the only microprocessor to surpass the 68020 and 68881 while retaining complete downward compatibility, and that it can perform up to four times faster than its competitors. Over 030, designed to upgrade CSA's Piggyback and CPU boards, retails for $495 bare. For more information, contact CSA at 7564 Trade St., San Diego, CA 92121, 619/566-3911.

MatheGraphically Speaking

WHAT WOULD YOU expect from a program named **Descartes** but function-graphing ability? This tool can bring simple and complex mathematical relationships, including calculus, into living color. You can choose between linear and logarithmic grids, alter the scale, and label your graphs in one of many formats. Because it is IFF-compatible, you can use your results with desktop-publishing, paint and animation programs. Mindware, Descartes' distributor, theorizes that the program will be helpful for teachers, engineers, 3-D designers and animators. Plot $29.95 on a check and send it off to 110 Dunlop St. W., Box 22158, Barrie, Ont., Canada L4M 5R3 or call 705/737-5998.

She Sells Tshells

IF YOU NEED full control over AmigaDOS, maybe you need **Tshell**, a flexible software development shell designed especially for the Amiga. Among the myriad of features are: a UNIX-like interface and filename expansion (plus inversion, directory/file differentiation and directory tree searching), C-like syntax, command-line editing and history, user-extensible on-line documentation, 39 built-in commands and eight forms of I/O redirection including pipes, here documents and backquoted commands. The introductory price of $50 entitles you to a free update, which will be released in response to user feedback. You won't find the Tshell on any beach; they've all washed up at Metran Technology, Box 890, West Oneonta, NY 13861. ■

COMMODORE AMIGA 2000



FREE DELIVERY!!!*
EVEN AT OUR LOW PRICES

S&S

S & S Wholesalers

226 Lincoln Road
Miami Beach, Florida 33139

* **FREE FREIGHT ON ORDERS OVER $100.00.** All prices reflect a 3% cash discount. Add 3% for credit card purchases. C.O.D. orders add $4.00 per box. Orders under $100.00 add $4.00 shipping and handling. Quantities on some items may be limited. Prices are subject to change without notice. APA FPO add 6% additional shipping. Foreign orders actual freight charges. All sales are final. Return of defective merchandise for replacement only with authorization. Authorized returns are subject to re-sotcking fee. Complete listing of all sales policies available upon request. FL residents add 6% sales tax.

COMMODORE AMIGA 500



C.O.D. • AMERICAN EXPRESS
VISA • MC • DINERS

FEDERAL EXPRESS SERVICE ONLY $4.00 CALL FOR DETAILS

1-800-233-6345

Dealers & Educational Institutions: 1-800-331-7054

Customer Service
305-538-1364

ELECTRONIC ARTS™

ADVENTURE CONST.	9.97	KID TALK	30.97
ALT. REALITY—THE CITY	24.97	KING'S QUEST	30.97
ARCHON	12.97	KING'S QUEST II	30.97
ARCHON II: ADEPT	12.97	KING'S QUEST III	30.97
ARCTIC FOX	24.97	MAD LIBS	12.97
ART PARTS VOL. II	18.97	MARBLE MADNESS	30.97
AUTODUEL	30.97	MATH TALK	30.97
BARDS TALE	30.97	MATH TALK FRACTIONS	30.97
BLACK CAULDRON	24.97	MAXICOMM	30.97
CHESSMASTER 2000	27.97	MAXIDESK	42.97
DELUXE MUSIC CONST.	60.97	MAXIPLAN	90.97
DELUXE PAINT	60.97	NEW TECH. COLOR BK.	12.97
DEL. PAINT DATA DSK. I	18.97	OGRE	18.97
DELUXE PAINT II	78.97	ONE-ON-ONE	12.97
DELUXE PRINT	60.97	POLICE QUEST	24.97
DEL. PRINT DATA DSK. 2	18.97	QUIZAM!	21.97
DELUXE VIDEO 1.2	78.97	RETURN TO ATLANTIS	24.97
DONALD DUCK'S PLAYGRND.	15.97	ROAD TO MOSCOW	24.00
EARL WEAVER BASEBALL	30.97	ROCK & ROLL INSTANT MUSIC	18.97
FANTACIDE	30.00	SEASONS & HOLIDAYS ART	18.97
FERRARI FORM ONE	30.97	SEVEN CITIES OF GOLD	12.97
FINANCIAL COOK BK.	12.97	SKYFOX	12.97
FIRST LET. & WORDS	30.97	SMOOTH TALKER	30.97
FIRST SHAPES	30.97	SPACE QUEST	30.97
GOLDEN OLDIES	12.97	SPELLER BEE	30.97
GRIDIRON FOOTBALL	36.97	STARFLEET I	34.97
HOT & COOL JAZZ	18.97	ULTIMA III	24.97
INSTANT MUSIC	30.97	ULTIMA IV	36.97
INTELLITYPE	30.97	WINNIE THE POOH	15.97

GALLERY OF GAMES

TYPING TUTOR WD INVADERS	20.97	CHAMPIONSHIP BASKTBALL	26.97
LEADER BOARD	23.97	GFL CHAMP. FOOTBALL	26.97
TOURN. DSK. LEADER BD.	11.97	ENHCD GRND SLM TENNIS 2	35.97
10th FRAME BOWLING	23.97	BALLYHOO	23.97
FAMOUS COURSE DISK	11.97	DEADLINE	29.97
HARDBALL	26.97	HITCHHIKERS GUID TO GALAXY	17.97
MEAN 18	26.97	HOLLYWOOD HIJINX	23.97
TEST DRIVE	26.97	NORD AND BERT	23.97
THE GRAPHICS STUDIO	35.97	PLUNDERED HEARTS	23.97
HACKER II	23.97	STATIONFALL	23.97
MUSIC STUDIO	29.97	ZORK TRILOGY	41.97
PORTAL	29.97	HEX	23.97
SHANGHAI	23.97	GOLD RUNNER	23.97
TASS TIMES	23.97	KARATE KID II	23.97
BRIDGE 4.0	17.97	TIME BANDIT	23.97
BRIDGE 5.0	20.97	GUNSHIP	29.97
STRIP POKER	23.97	SILENT SERVICE	23.97
SUPER HUEY	17.97	MICROLEAGUE BASEBALL	35.97
STAF FLEET I	33.00	BALANCE OF POWER	29.97
CALIFORNIA GAMES	23.97	BRATACUS	29.97
DESTROYER	23.97	DEFENDER OF THE CROWN	29.97
ROGUE	23.97	UNINVITED	29.97
SUB BATTLE	23.97	ALIEN FIRES	23.97
TEMPLE OF APSHAI TRILOGY	11.97	GUARDIANS OF INFINITY	23.97
WINTER GAMES	23.97	MSTR NINJA WAR. OF DEATH	20.97
WORLD GAMES	23.97	NIGHT ON THE TOWN	20.97
GOLDEN PATH	26.97	ARENA	11.97
GUILD OF THIEVES	26.97	BARBARIAN	23.97
JEWELS OF DARKNESS	17.97	DEEP SPACE	17.97
KNIGHT ORC	26.97	TERRORPODS	23.97
PAWN	26.97	HACKER	14.97
SILICON DREAMS	17.97	LITTLE COMPUTOR PEOPLE	14.97
STARGLIDER	26.97	GATO	29.97
UNIV. MILITARY SIM.	29.97	ORBITER	29.97

AEGIS DEVELOPMENT

ANIMATOR W/IMAGES	83.97
ART-PAK #1 FOR IMAGES	20.97
AEGIS DRAW	75.00
AEGIS DRAW PLUS	155.97
AEGIS IMAGES	23.97
ARAZOK'S TOMB	23.97
DIGA	47.97
IMPACT	53.97
SONIX	47.97
VIDEOSCAPE 3D	119.97

OKIMATE 20

$119.00

W/ PURCHASE OF PLUG-N-PRINT

DEVELOPMENT TOOLS & PROGRAMMING LANGUAGES

ART-PAK #1 FOR IMAGES	20.97	AZTEC C PROFESSIONAL	119.40
AC BASIC	177.30	A—COPIER	23.97
FORTRAN	177.00	A-DISK	17.97
AMIGA DOS EXPRESS	17.97	ZING	47.97
AMIGA ASSEMBLER	59.97	ZING KEYS	29.97
AMIGA C	89.97	AMIGA PASCAL	59.97
AMIGA ENHANCER	8.97	CAMBRIDGE LISP	119.97
AMIGA LISP	119.97	MACRO ASSEMBLER	59.97
AMIGA PASCAL	59.97	METACOMCO SHELL	47.97
AMIGATERM	29.97	METACOMCO TOOLKIT	29.97
IBM PC CROSS DEV. PKG.	59.97	FLIP SIDE	35.97
GIZZMOZ	29.97	FLOW	59.97
GRABBIT	17.97	FLASH CACHE	47.97
MARAUDER II	23.97	MODULA 2	59.97
DEVPAK	59.97	MODULA 2 COMMERCIAL	179.97
EXPERT SYSTEMS KIT	41.97	MODULA 2 DEVELOPER VER	89.97
K-SEKA	59.97	RUN TIME	59.97
K-SEKA 68K ASSEMBLER	59.97	SORTING & SEARCHING	29.97
LATTICE C	135.00	TRUE BASIC	59.97
AZTEC C COMMERCIAL	299.40	TRUE BASIC DEV. TOOL KIT	29.97
AZTEC C DEVELOPER	179.40	3D - GRAPHICS	29.97

PRODUCTIVITY SOFTWARE

AWARD MAKER	29.97	ORGANIZE	59.97
AMIGA TEXTCRAFT	59.97	SCRIBBLE	59.97
GRAPHICRAFT	29.97	THE WORKS	119.97
THE DIGITAL LINK	41.97	PROWRITE	74.97
LPD FILER	71.97	PUBLISHER	119.97
LPD PLANNER	71.97	2 - 2 HOME MGMT.	59.97
LPD WRITER	71.97	PAR HOME I	29.97
COMIC SETTER	59.97	PAR REAL	77.97
FONT SET	20.97	CLI-MATE	23.97
GOLDSPELL	26.97	LOGISTIX	89.97
PAGESETTER	89.97	SUPERBASE PERSONAL	89.97
PAGESETTER LASERSCRIPT	26.97	VIZAWRITER DESK TOP	89.97
PROFESSIONAL PAGE	237.00	FONT LIB. SET #1	60.00
PROFESSIONAL COLOR	117.00	FONT LIB. SET #2	60.00
TAURUS-ACQUISITION	179.97	PRO VIDEO	120.00
POWER WINDOWS	53.97	VP PLUS	179.97
THE EXPLORER	29.97	VIDEO FONTS	29.97
BUMPERSTICKER MAKER	35.97	MONEY MENTOR	57.57
BUSINESS CARD MAKER	35.97	ART GALLERY I	17.97
BUTTON & BADGE MAKER	35.97	ART GALLERY II	17.97
VIDEO WIZARD	35.97	FONTS AND BORDERS	20.97
VIP PROFESSIONAL	89.97	PRINT MASTER PLUS	29.97
A-FILER	29.97	DBMAN	74.97
A-GRAPHIC	23.97	WORD PERFECT 4.1	197.50
A-TERM	29.97	TV SHOW	59.97
X-RATED GRAPHICS LIB	14.97	TV TEXT	59.97
ANALYZE	89.97	ZUMAFONT VOL I	20.97

HELP KEY

From rubberbands to lasers, our resident answer man explains all.

By Louis R. Wallace

THE EYES HAVE IT

Q: *After I have been working with my Amiga CAD programs, my friends whisper "What's wrong with Peter? His eyes are flickering." My girlfriend calms them and replies, "He's just tuned into interlaced mode!" Where is the A2080, the legendary high-persistence monitor for the Amiga?*

P. Olsson
Sweden

A: I recently queried Commodore in West Chester, PA about the A2080 high-persistence monitor, and was told it would start shipping during the summer. Meanwhile, you might want to try one of those inexpensive plastic screen covers (Flicker Master, JitterRid, EYE-RESolution Screen). I use JitterRid, a damn good piece of plastic that really helps eliminate eye strain.

WHEN TO COMPILE

Q: *I recently upgraded from a C64 to the A500 and have a couple of questions concerning compilers.* AmigaWorld *often prints listings of C programs. Do I need a C compiler to run them, or can I just enter the code with a text editor and run a program without compiling it? Assuming I need a compiler to create these programs, once compiled can they (or any other programs I create) be installed on a DOS disk and executed without the compiler being present? Will Modula-2 and True Basic be reviewed in* AmigaWorld?

J. Pyle
Loring AFB, ME

A: Because the C-language listings in *AmigaWorld* are not stand-alone programs, you must compile them before attempting to run them. If you do have a C compiler, then enter the source code listings with a text editor, and compile them. Once this is done, you can copy them to any AmigaDOS disk and use them without a compiler. However, some programs will require the presence of various libraries from your system disk.

For information on True Basic and Amiga Basic with the Absoft Basic Compiler, see "Basic For Pros" in the November '87 issue. Several Modula-2 compilers are available for the Amiga; we will review three of them this summer.

ALL THAI-ED UP

Q: *I am designing a Thai font and want to use it with a better word processor than NotePad. Can I use fonts generated with the font editor (on the Extras disk) in Textcraft?*

B. Zackari
Sweden

A: Textcraft is too simple a program to support multiple fonts, but a number of other word processors, such as ProWrite (New Horizons Software) and VizaWrite (Progressive Peripherals and Software), will allow you to use as many fonts as you want. If you are comfortable with Textcraft, you might consider KindWords (The Disk Company). Developed by the same people who designed Textcraft, KindWords has a similar command structure, but it can use multiple fonts and graphics within a document. For reviews of these programs, see the Sept./Oct. '87, Jan. '88 and April '88 issues of *AmigaWorld.*

LASER POWER

Q: *I am interested in getting a laser printer for my Amiga 1000. I have heard they are quiet and produce the best quality output, but some peope have told me they are a problem. Which is it?*

I am considering the Hewlett-Packard Laser Jet II. Will it work properly with my Amiga? Who makes the printer cable I will need? Do laser printers print what is on the screen (fonts, graphics) or are special fonts required in the printer? How long do the toner cartridges last?

J. Lindhardt
Fayetteville, NC

A: In its highest density setting of 300 dots per inch (dpi), a laser printer produces the finest output available, but because they are more complex than impact printers, they do have the potential for more problems.

The Laser Jet II is becoming a standard of sorts for laser printers. It is well supported by software, including the Preferences printer list, so it will work with any program that supports the standard Preference printers. For a cable, you should not need anything more than the standard printer cable required for your Amiga.

Since the printers supported by the Preferences program allow you to print bitmap images, you will be able to dump the screen to the Hewlett-Packard. But be aware that laser printers require their own RAM for bitmap printing, and a 300 dpi printout of an 8½ × 11-inch page will require at least a megabyte of RAM (in the printer, not the Amiga). You can buy various levels of RAM for the Laser Jet.

The Laser Jet has built-in fonts, but you can add more by plugging in one of the font cartridges available. The amount of toner used depends on the type of printouts you generate; graphic images and 300 dpi text use it up a lot faster than lower density 75 and 150 dpi text.

If you are planning on doing desktop-publishing using Postscript-based software, be aware that the Laser Jet does not come with Postscript. It uses its own proprietary ►

YOU HAVE JUST FOUND WHAT YOU'VE BEEN LOOKING FOR!! / THE SOFTWARESHOP ...NOW GOING INTERNATIONAL

DISCOVER

GENESIS II

WORK STATION

BUSINESS ACCOUNTING

B.E.S.T.	$310.00
Financial Plus	$199.00
Investor's Advantage	$ 69.00
MI Amiga Ledger	$ 65.00
Micro Lawyer	$ 42.00
Nimbus Rcd. Keeper	$110.00
The Works	$142.00

DATABASE MANAGEMENT

Acquisition 1.2F	$210.00
Data Retrieve	$ 57.00
DBMan	$141.00
LPD Filer	$ 89.00
Microfiche Filer	$ 73.00
Organize	$ 65.00
Rolobase Plus	$ 62.00
Superbase	$ 99.00
Superbase Professional	$230.00
Write and File	$ 69.00

LANGUAGES & UTILITIES

A/C Basic	$139.00
A/C Fortran	$199.00
Assempro	$ 69.00
Aztec C Developer	$210.00
Aztec C Commercial	$335.00
Aztec C Professional	$145.00
Benchmark Modula 2	$139.00
Climate	$ 27.00
Custom Screens	$ 47.00
Disk 2 Disk	$ 35.00
Diskwik	$ 35.00
DOS 2 DOS	$ 39.00
Doug's Master Aquarium	$ 55.00
Examples Programs	$ 18.00
FACC II	$ 27.00
Flipside	$ 39.00
Grid Access	$ 35.00
Kermit	$ 22.00
Lattice C	$165.00
Lattice C Professional	$269.00
Cambridge Lisp	$145.00
Macro Assembler	$ 75.00
Metascope Debugger	$ 65.00
Modula 2 Commercial	$215.00
Modula 2 Developer	$110.00
Modula 2 Regular	$ 69.00
Amiga Pascal	$ 69.00
Power Windows II	$ 65.00
Quarter Back	$ 47.00
Quick Merge	$ 42.00
Amiga Shell	$ 49.00
Source Level Debugger	$ 55.00
Amiga Tool Kit	$ 36.00
True Basic Basic Lang.	$ 69.00
Truestat TB	$ 55.00

WORD PROCESSORS

Deluxe Write	$ 69.00
Flow	$ 69.00
Gold Spell	$ 33.00
Kindwords	$ 69.00
Laser Script	$ 30.00
Lex Check	$ 33.00
LPD Writer	$ 89.00
Promise	$ 35.00
Prowrite	$ 89.00
Reason	$265.00
Talker	$ 48.00
Textcraft Plus	$ 67.00
Textpro	$ 57.00
LPD Writer "Unprotected"	$ 99.00
Vizawrite	$ 99.00
Word Perfect	$220.00

COPIERS

Marauder II	$ 29.00
The Mirror Copier	$ 35.00
Mirror Hacker Pkg.	$ 35.00

HOME ACCOUNTING

Home Inventory	$ 30.00
Money Mentor	$ 69.00
Phaser	$ 69.00
Video Cataloger	$ 30.00

DESK TOP PUBLISHING

City Desk	$105.00
City Desk Art Companion	$ 20.00
Page Setter	$ 99.00
Professional Page	$259.00
Publisher 1000 Plus	CALL
Shakespeare	$159.00

HARDWARES

256 RAM A1000	$139.00
1200 Baud Modem	$125.00
Hard Disk w/hd Controller	$725.00
512K Expansion Board	$169.00
Alegra (512K) A1000	$220.00
Amigen	CALL
Avatex 1200 HC	$115.00
Avatex 2400	$239.00
Easyl 1000	$369.00
Easyl 2000	$395.00
Easyl 500	$369.00
Flicker Fixer	$495.00
M68881 Math Chip	$189.00
3½" Disk Cabinet	$ 35.00
3½" Disk Holder w/lock	$ 30.00
3½" Disk Cabinet 74CAP	$ 28.00
Multifunction Card	$ 89.00
Micron 2MEG A2000	CALL
NEC 3½" Interneral Drive	$155.00
Okimate Plug 'n Print	$ 85.00
Perfect Vision	$ 179.00
Phoenix 20MEG HD	$845.00
Phoenix 40MEG HD A500	$845.00
Practical 2400	$229.00
Pro Drive	$199.00
Progen	CALL
Quick Start	$145.00
SCSI Controller/A2000	$175.00
SCSI Internal HDrive 20MG	$449.00
SCSI Int. HDrive 40MG	$540.00
SCSI Int. HDrive 65MG	$599.00
SCSI Card Microbotic	$115.00
Spirit Tech A1000 1.5MEG	CALL
Spirit Tech A500 1.5MEG	CALL
Supergen	CALL
Supra 20MG Hardrive	$725.00
Supra Modem 2400	$175.00
Upper Deck	$ 89.00
WV1410 Panasonic Camera	$235.00

COMMUNICATIONS

BBS-PC	$ 65.00
DIGA	$ 55.00
Digital Link	$ 49.00
Marco Modem	$ 49.00
Online	$ 48.00

EDUCATIONALS

Adv. of Sinbad	$ 35.00
Aesop's Fables	$ 35.00
All About America	$ 40.00
Animal Kingdom	$ 35.00
Decimal Dungeon	$ 35.00
Discovery Math	$ 29.00
Discovery w/Math Spelling	$ 29.00
Discovery Spell	$ 29.00
Discovery Trivia	$ 29.00
Donald Duck's	$ 22.00
First Letters & Words	$ 35.00
First Shapes	$ 35.00
Fraction Action	$ 35.00
Galileo 2.0	$ 45.00
Grade Manager	$ 59.00
Great States U.S.A.	$ 30.00
Kid Talk	$ 35.00
Kinderama	$ 35.00
Linkword French	$ 25.00
Linkword German	$ 25.00
Linkword Italian	$ 25.00
Linkword Russian	$ 25.00
Linkwood Spanish	$ 25.00
Mad Libs	$ 17.00
Match It	$ 30.00
Math Talk	$ 35.00
Math Talk Fraction	$ 35.00
Math Wizard	$ 35.00
Mothergoose	$ 31.00
Music Student I	$ 52.00
New Tech Coloring Book	$17.00
Perfect Score	$ 55.00
The Planetarium	$ 49.00
Quiz Master	$ 55.00
Read & Rhyme	$ 35.00
Read-A-Rama	$ 35.00
Speller Bee	$ 35.00
Tales from Arabian	$ 35.00
Talking Coloring Book	$ 21.00
Winnie The Pooh	$ 20.00
The Word Master	$ 35.00

GRAPHICS & VIDEO

Animator Apprentice	$199.00
Animate-3D	$105.00
Animator w/Images	$ 85.00
Art Gallery I	$ 24.00
Art Gallery II	$ 24.00
Art-Pak #1	$ 25.00
Art Parts #2	$ 24.00
Butcher	$ 35.00
Deluxe Help	$ 27.00
Deluxe Paint II	$ 95.00
Deluxe Print II	$ 65.00
Deluxe Productions	$145.00
Deluxe Video II	$ 95.00
Digi-Paint	$ 45.00
Digi-View 2.0	$145.00
The Director	$ 49.00
DPaint Art & Utility #1	$ 25.00
Deluxe Print Art #2	$ 24.00
Draw Plus	$167.00
Dynamic Cad	$325.00
E/FX Station Mgr.	$195.00
Express Paint	$ 54.00
Forms In Flight	$ 54.00
Graphics Studio	$ 42.00
Impact	$ 60.00
Introcad	$ 55.00
Page Flipper	$ 39.00
Photon Paint	$ 67.00
Pix-Mate	$ 47.00
Print Master Plus	$ 35.00
Prism	$ 45.00
Provideo CG I	$135.00
PV Plus	$199.00
Sculpt 3-D	$ 69.00
Seasons & Holidays	$ 24.00
Silver	$115.00
TV Show	$ 69.00
TV Text	$ 69.00
Video Fonts	$ 35.00
Video Scape 3D	$133.00
Video Titler	CALL
X-Cad	$399.00

SPREAD SHEETS

Analyze	$ 99.00
Haicalc	$ 39.00
LPD Planner	$ 89.00
Maxi-Plan 500	$109.00
Maxi-Plan Plus	$135.00

SOUND & MUSIC

Audio Master	$ 40.00
Deluxe Music Const. Set	$ 69.00
Dynamic Drums	$ 52.00
Dynamic Studio	$140.00
Future Sound	$139.00
Hot & Cool Jazz	$ 24.00
Hotlicks	$ 37.00
Instant Music	$ 35.00
Music X	$210.00
Music Mouse	$ 57.00
Music Studio	$ 42.00
Perfect Sound	$ 70.00
Perfect Sound A500/A2000	$ 69.00
Pro Midi Studio	$134.00
Rock & Roll	$ 24.00
Rock & Roll	$ 24.00
Sonix	$ 55.00
Sound Sampler	$ 89.00
Studio Magic	$ 69.00
Synthia	$ 68.00

CREATIVITY & PRODUCTIVITY

Analytic Art	$ 42.00
The Big Picture	$ 22.00
Business Card Maker	$ 40.00
Calligrapher	$ 65.00
Fast Fonts	$ 27.00
Font Set I	$ 25.00
Gizmoz Enhanced	$ 45.00
Grabbit	$ 24.00
Intellitype	$ 37.00
Keyboard Cadet	$ 30.00
Logic Works	$ 70.00
Master Type	$ 30.00
Precisely	$ 52.00
Print N' Wear	$ 15.00
Text Ed	CALL

ACCESSORIES

A-Time Plus	$ 49.00
Bonus Verbatim 3.5 Disks	$ 22.00
C-View	$ 49.00
ECE 1000 Midi Interface	$ 55.00
ECE 500 Midi Interface	$ 55.00
Eye Res	$ 14.00
Flicker Master	$ 14.00
Gender Changer	$ 24.00
500 XJ Joystick	$ 18.00
Modem Cable	$ 17.00
Modem Cable 500/2000	$ 17.00
Mouse Pads	$ 7.00
Printer Cable	$ 17.00
Printer Cable 500/2000	$ 17.00
Super Mouse Pads	$ 14.00
Time Saver	$ 65.00
Trackball	$ 39.00

MONITORS

Magnavox RGB Analog	$299.00
Thomson 4120	$235.00
Princeton Ultrasync	$579.00
Zenith C1490	$775.00

ENTERTAINMENT

Alien Fires	$ 30.00
Amegas	$ 27.00
Arazok's Tomb	$ 30.00
Archon II	$ 30.00
Arctic Fox	$ 28.00
Arkanoids	$ 37.00
Autodual	$ 37.00
Balance of Power	$ 35.00
Barbarian	$ 30.00
Bard's Tale	$ 35.00
Black Cauldron	$ 31.00
Black Jack Academy	$ 30.00
Boot Camp	$ 30.00
Brataccas	$ 35.00
Breach	$ 30.00
Bridge 4.0	$ 24.00
Bridge 5.0	$ 25.00
California Games	$ 30.00
Challenger	$ 25.00
Champ. Baseball	$ 30.00
Champ. Basketball	$ 30.00
Champ. Football	$ 33.00
Champ. Golf	$ 30.00
Chessmaster 2000	$ 35.00
City Defense	$ 15.00
Constellation	$ 16.00
Contra	$ 30.00
Dark Castle	$ 31.00
Deepspace	$ 25.00
Deja Vu	$ 35.00
Destroyer	$ 30.00
Detonator	$ 31.00
Defender of the Crown	$ 35.00
Diablo	$ 22.00
Dr. Fruit	$ 22.00
Dr. Xes	$ 37.00
Earl Weaver Baseball	$ 35.00
Faery Tale	$ 17.00
Famous Courses	$ 17.00
Ferrari Formula One	$ 37.00
Final Trip	$ 22.00
Fire Power	$ 20.00
Flight Simulator	$ 37.00
Footman	$ 24.00
Galactic Invasion	$20.00
Galaxy Fight	$ 24.00
Garrison	$ 35.00
Gee Bee Air Rally	$ 35.00
Goldrunner	$ 30.00
Grand Prix	$ 20.00
Gridiron Football	$ 45.00
Grid Start	$ 20.00
Guild of Thieves	$ 33.00
Gunship	$ 30.00
Hacker	$ 24.00
Hacker II	$ 29.00
Halley Project	$ 33.00
Hardball	$ 33.00
Headcoach	$ 33.00
Hex	$ 29.00
Hunt Red October	$ 31.00
Indoor Sports	$ 35.00
Insanity Fight	$ 30.00
Into The Eagle's Nest	$ 30.00
Jackal	R 30.00
Jet	$ 37.00
Jewels of Darkness	$ 25.00
Kampfgruppe	$ 39.00
Karate Kid II	$ 30.00
Karate King	$ 15.00
King of Chicago	$ 35.00
Kingquest I	$ 35.00
Kingquest II	$ 35.00
King's Quest III	$ 35.00
Knight Orc	$ 33.00
Land of Legends	$ 35.00
Leader Board	$ 27.00
Leisure Suit Larry	$ 35.00
Little Computer People	$ 25.00
Marble Madness	$ 30.00
Mean 18	$ 30.00
Mindwalker	$ 36.00
Moebius	$ 42.00
The Pawn	$ 30.00
Phantasie	$ 30.00
Phantasie III	$ 30.00
Plutos	$ 23.00
Portal	$ 35.00
Ports of Call	$ 35.00
Golden Pyramid	$ 25.00
Q-Ball	$ 23.00
Quintette	$ 30.00
Quizam	$ 27.00
Racter	$ 30.00
Return to Atlantis	$ 36.00
Roadwar 2000	$ 30.00
Roadwar Europa	$ 30.00
Rogue	$ 30.00
Rush 'n Attack	$ 30.00
Sargon III	$ 35.00
Scenery Disk #11	$ 20.00
Scenery Disk #17	$ 20.00
S.D.I.	$ 35.00
Shadow Gate	$ 35.00
Shadowgate	$ 35.00
Shanghai	$ 29.00
Silent Service	$ 30.00
Silicon Dreams	$ 25.00
Sinbad	$ 35.00
Skyfox	$ 17.00
Smooth Talker	$ 35.00
Space Battle	$ 25.00
Space Fight	$ 22.00
Space Quest	$ 35.00
Starfleet I	$ 40.00
Starglider	$ 35.00
Stellar Conflict	$ 30.00
Steet Sports Basketball	$ 30.00
Strip Poker	$ 30.00
Super Huey	$ 30.00
The Surgeon	$ 35.00
Tass Times in Tonetown	$ 29.00
Telegames	$ 27.00
Telewars	$ 27.00
Temple of Apshai	$ 17.00
Grand Slam Tennis	$ 35.00
Terropods	$ 30.00
Test Drive	$ 35.00
Tournament Disk	$ 17.00
Turbo	$ 20.00
Ultima IV	$ 42.00
Uninvited	$ 35.00
Vader	$ 20.00
Video Vegas	$ 27.00
Vyper	$ 24.00
Western Games	$ 35.98
Winter Games	$ 30.00
Witchcraft	$ 27.00

1-800-752-0050

FOR ORDERS ONLY

CUSTOMER SERVICE 617-756-6452
After July Call 508-756-6452

84 Pleasant Street, Worcester, MA 01609

Circle 134 on Reader Service card.

Product subject to availability. Price subject to change.
Shipping Info: C.O.D. only $3.50 per shipping. We ship UPS Ground. Air, and overnight shipping available.
For faster delivery send Cashier Check, Money Order, or use MasterCard or Visa. Personal checks allow 20 days to clear.
Company purchase orders accepted. Call for prior authorization. Mass. residents add 5% sales tax.
Amiga is a trademark of Commodore-Amiga, Inc.
Return Policy: Returned items must be in original packaging, with all warranty cards and manuals intact. No credit issued after 30 days from date of shipping. Non-defective returns are subject to 15% restocking fee. We do not guarantee compatability. All returned items must have a RMA number assigned.

document-description language, which is not Postscript compatible. You can add a Postscript emulation board, but that is expensive. In that case you might consider the Apple LaserWriter or other Postscript-based laser printers.

The Doctor Is In

Q: *Recently, while trying to access a disk with Scribble! documents, an error message appeared that stated my disk needed help from the DiskDoctor. What is DiskDoctor and how can I obtain it?*

J. Gelwicks
Bloomington, IN

A: Located in the C directory of your 1.2 Workbench disk, DiskDoctor is an invaluable file rescue program that can only be accessed from the CLI. Often it can salvage files from damaged disks that would otherwise be inaccessible. To use it, open a CLI window, place your damaged disk in a drive and type its name followed by the drive specifier. For example, type DISKDOCTOR DF1: to salvage files on a bungled disk in drive 1. DiskDoctor will analyze the disk, and recover those files that it can save. Some files may well be gone forever, and it will remove those. When it is finished, it will instruct you to copy the files to a new disk and reformat the damaged disk so you can use it again. Use the CLI command Copy to transfer the files to the new disk. You might want to copy the files to the RAM disk as an intermediate step. Type COPY DF1: all RAM:, then insert a freshly formatted disk into drive 1 and type COPY RAM: all DF1:. Now all your recovered files are safe on the new disk.

Rubberband Man

Q: *I am writing a program in Amiga Basic that requires a technique called "rubberbanding." That is a method where you make a line, circle or box move around the screen in response to the mouse, without disturbing the contents of the screen. For the life of me I can't seem to figure out how to make it work in Amiga Basic. Can you help?*

J. Delmato
Chicago, IL

A: Rubberbanding effectively requires two things. First you must draw the line in COMPLEMENT (XOR) mode, which means that it reverses the bit pattern of the pixels it is drawn on. To restore what was there, you merely draw the line again in the same exact place, again using COMPLEMENT mode. You can then draw a new line in another position. The problem is that there is no COMPLEMENT mode for drawing in Amiga Basic. You can get around that by using one of the graphics library routines, called SetDrMd, just as you would in a C program.

Found in the graphics library, SetDrMd can be easily accessed from Amiga Basic with the CALL command. There are four modes you can use: JAM1 (normal), JAM2, COMPLEMENT and INVERSEID. To set a mode, you merely pass a pointer to the current raster port (you can find the current raster port with the WINDOW(8) function) and a value from 0–3 for the proper mode (COMPLEMENT is 2). For example:

```
LIBRARY "graphics.library"
  ' turn on COMPLEMENT
    mode
CALL SetDrMd&
  (WINDOW(8),2)
' draw a rubberband line
' remember to do it twice
LINE (0,0)-(600,190),1
LINE (0,0)-(600,190),1
' turn normal JAM1 mode
  back on
CALL SetDrMd&
  (WINDOW(8),0)
```
■

THE READERS' CHOICE



"HOW COULD HE be so positive/negative about such an awful/outstanding program? I could rate it better than that!" Go ahead, now's your chance to tell us what you think. For the past two years, we editors have applauded our favorite products with the Editors' Choice Awards. This year we leave the voting up to you. On the supplied coupon (or a postcard), rate your hardware and software over a scale of one (the lowest) to 10 for each of the three criteria (A, B and C) listed in the appropriate category. Send your votes to: The Readers' Choice, *AmigaWorld*, 80 Elm St., Peterborough, NH 03458.

In the December issue, we'll present the 1st Annual Reader's Choice Awards with all the pomp and glitter they deserve. However, unlike the Academy Awards who employ the prestigious accounting firm of Price & Waterhouse for their tabulations, *AmigaWorld*'s results are entrusted to the firm of Cutrate & Watergate, infamous for their security leaks. While they can count accurately, they can't keep secrets. In upcoming issues, watch for pre-ceremony peeks inside the envelopes.

CREATIVITY (graphics, video, music, desktop publishing)
A) ease of use
B) flexibility (special equipment needed, integrates with other programs)
C) professional features (Can you use it in your business/studio?)

GAMES
A) playability
B) presentation (graphics, sound)
C) longevity (How long does it hold your interest?)

HARDWARE (memory expansion, hard drives, digitizers, genlocks)
A) ease of installation
B) ease of use
C) technical support

HOME (educational, finance)
A) ease of use
B) documentation (complete reference, examples, tutorials)
C) flexibility (Does it have a variety of uses or will you grow out of it?)

PRODUCTIVITY (spreadsheets, databases, accounting, telecommunications, word processors)
A) ease of use
B) flexibility (import files from other programs, a variety of applications)
C) advanced features (Can you grow into the program?)

PROGRAMMING (languages, utilities)
A) documentation (complete reference, examples, tutorials)
B) flexibility (integrates with other libraries, routines)
C) advanced features (Will it support more complicated applications?)

MISCELLANEOUS (whatever is left)
A) ease of use
B) documentation (complete reference, examples, tutorials)
C) performance (Does it do what was promised?)

PRODUCTS	**RATING** A	B	C

COMMENTS

PRODUCTS YOU WOULD LIKE TO SEE REVIEWED

Here At Last!

AMIGA WORLD PUBLIC DOMAIN LIBRARY

AMIGAWORLD, IN CONJUNCTION with four leading Public Domain software houses, now brings you the largest selection of Public Domain programs ever assembled in one place.

Chiron Conceptions, DevWare, Software Excitement, and Comp-U-Save each specialize in a different area of Amiga Public Domain.

DevWare

Disks for the developer and advanced user. CLI-based and filled with usefull utilities, demos, subroutines, and programs, almost all with source code.

Software Excitement

Disks for the Workbench user. Many of the best PD programs for everything from business to games.

Chiron Conceptions

Category disks for special-interest users. Music, graphics, C, Amiga Basic, and more.

Each disk is filled with programs, fully tested, fully de-bugged, documented, and organized in a way that makes them more valuable than other Public Domain disks. A great value at only $7.00 per disk (plus $1.00 postage and handling for each disk).

You could search the BBSs and user group libraries yourself, gathering many of these programs one or two at a time, but these three companies have already done that for you!

But just in case you ARE looking for disks from an existing library, there is also:

Comp-U-Save

Complete libraries of Amicus, Amuse, B.C.S., Fred Fish, I.C.P.U.G., L.I.C.A., M.A.R.C.A, N.C.A.U.G., and New Age. Each disk is only $5.00 (plus $1.00 postage and handling for each disk).

If you want the complete catalog listings from all four companies—describing each disk in greater detail (listings for nearly 700 PD disks!)—plus order blanks, specials, and information about contributing to AWPDL, send $2.00 for the AWPDL catalog pack (see order form below).

Here are just a few of the disks available from Software Excitement, DevWare, and Chiron Conceptions:

From Software Excitement.

(Workbench oriented)

SE #37 - Business. Address book, amortization prog., talking mail manager, label printer, more.

SE #42 - Tele-Comm. StarTerm 3.01, area code finder, cost timer, BBS.txt (list of over 100 Amiga boards), more.

SE #115 - PD Word Processor. With spell checker and dictionary, VDraw (shareware paint), VT-100 term emulator, appointment calendar.

SE #116 - Business II. VC-Spreadsheet, HP-10c calc, diversions, more.

SE #117 - Business III. DataBase, RSLClock (utility), AmigaSpell, new fonts.

SE #118 - Games. Missile Command, 3-D Triclops, Cosmo-asteroids clone, BreakOut, Yatzee, Hack, more.

SE #121 - Backgammon. By David Addison.

SE #122 - Solitaire. Two versions by David Addison.

SE #123 - Cribbage. One or two players.

SE #124 - Milestone. PD Miles Bournes by David Addison.

SE #125 - Othello. 3-D version.

SE #128 - Space Games. Cosmoroids (like asteroids) and Gravity Wars plus more.

SE #131 - Pac clone. Better than original.

From DevWare

(These disks focus on the developer and power user. Most contain source code. All programs must be run from CLI, and Workbench is not included.)

DW #1 - 3-D graphics demo, prog for browsing directories, DiskSalv (utility for salvaging corrupted disks), Emacs3.6 (MicroEmacs text editor).

DW #10 - Memory test prog., how to build a dual floppy, 2 input event handler demo progs., Lattice3.10 bug fixes, sound editor, PipeDevice, random number generator in C, Unix uuencode and uudecode utilities, more.

DW #14 - CLE (CLI replacement), EGad gadget editor, FindWindow example, MacView (read and convert MacPaint pics to IFF), warmboot-stable RAM disk driver, Vidtex, more.

DW #15 - Amiga version of Unix's Yacc, how to build a battery-driven clock for Amiga, program for handling patches of MIDI instruments, VT100v2.6 (includes Xmodem and Kermit).

DW #17 - DBWRender. Very sophisticated package for rendering ray-traced images. C source included.

DW #21 - Arc023, CD command replacement, utility to change some printer driver parameters, simple CLI database, text editor, kickbench generator, NewZap3 binary file editor, PDMake, Modula 2 programming examples, more.

DW #23 - Blitter experimenter prog., telecomm prog., CLI alternative w/editing and history, DirUtil prog., HP-10c, Make utility, Modula 2 printer dump example, TDI Modula 2 error display utility, ROM Kernel Manual errata, TDI Modula 2 version 3.00a bug fixes, Amiga Exec system lists exploration prog., more.

DW #24 - Hard disk backup prog., Manx C version 3.40A bug fixes, 40 printer drivers, Unix-like command interpreter w/history and aliases, curve-fitting spline prog, 2 trackballs for Amiga (MacTball and Atari 2600), video pattern generator, more.

DW #26 - convert batch files from "execute XXX" to "XXX", Bezier curve prog., beta spline curve prog., assem. language include (.i) file compressor, ConMan0.98 console device alternative, disk format exploration utility, MCad1.2.5 (shareware), printer-driver generator (shareware), more.

DW #28 - 3-D terrain generator in C, Rob Peck's audio device subroutines, IFF graphics to PostScript laser printer prog., extra-half-bright tester, icon collection, info command alternative, memory clear C example, Modula 2 draw prog. example, 2 AmigaDOS utilities in Modula 2, Modula 2 Intuition menus example, more.

From Chiron Conceptions

CC #202 - Amiga Basic Programs II. Sixty Amiga Basic programs in 12 categories, including games, business, graphics, subroutines, .BMAP routines, utilities, and more.

CC #302 - Utilities II. A collection of utilities, compiled and ready to run, including DiskSalvage, FileZap, Fixobj, IconExec, ARC, CompressZ, XLISP, Screendump, and more.

CC #303 - Utilities III. Includes MVP-FORTH, 12 new character set fonts, DirCopy, ShowHAM, ZapIcon (converts DPaint brush to icon), more.

CC #304 - Graphics Utilities. Including MacView (w/18 MacPaint paintings), 3 screen-dump programs, HAM to HAM IFF converter, FONTED (design your own character sets), more.

CC #305 - Utilities IV. Over 30 utilities, including Browse, DiskCat, DiskMap, HAMPrint, KwikCopy, LibDir, AltIcon, Klock, MemView, PopCLI, SpriteMaker, Tree, more.

CC #308 - Utilities V. More utilities, including ChangeKickStart, Dlabel, MenuCat, PrtDrvGen, Xicon, NewZap, Monitor, JOBS, DiskX, FixHUNK2, Undelete, Xcopy, more.

CC #409 - C Demos I. A disk filled with source code and compiled programs for the beginner or advanced C programmer.

CC #410 - C Demos II. Another disk for the C language learner, user, or expert.

CC #411 - Demos and Thingies. If you liked Boing! you will love this disk filled with dozens of little demos and graphics toys, also dozens of pointer icons plus over 5 dozen scenarios for Flight Simulator II.

CC #503 - Music Studio. 2 Dozen songs for Music Studio. (Music Studio required.)

CC #507 - MIDI I. A disk with nothing but MIDI stuff. From plans to building a MIDI interface to patches for CZ synths. Includes MIDIUtil. MIDI2, PANL1.2, CZ101, CZL, more.

CC #508 - DMCS I. Over 40 songs for DeluxeMusic. (DeluxeMusic required.)

CC #515 - Perfect Sound Effects I. 40 sound effects recorded with Perfect Sound all in IFF format, includes shareware version of Perfect Sound program to play and edit sounds.

CC #602 - DPaint Slideshow I. 30 DPaint pictures with auto-run slideshow. (DPaint not required.)

CC #614 - Juggler animation. Famous ray-traced animated clown juggling three mirrored spheres.

Remember, most of these are public domain programs, contributed freely to the Amiga community. Some are "shareware" programs for which the authors ask contributions if you feel the program is good enough. There are no guarantees about the quality, usefulness, or results you might get with any particular program. If the disk is faulty, return it for a replacement. Allow two to four weeks for delivery.

If you have programs you would like to contribute to AWPDL, we will do everything possible to see they get into the public domain.

Send check or money order to: AWPDL, 80 Elm St., Peterborough, NH 03458

Name: ______________________

Address: ______________________

City: ____________ State ________ Zip ____________

Number of AWPDL disks ________

X $8.00 ($7 + $1 P&H) $ ________

PD catalog pack ($2) $ ________

Total $ ________

AWPDL disks ordered ________, ________, ________, ________, ________

________, ________, ________, ________, ________

The Pull-Down Menu

designers artists MVP

Amiga Graphics Services

*any art digitized hi-res to disk
*film recording of IFF disk image (slides-prints- 3″ × 4″ transparency)
*4 color separations!!!
*NO RASTER LINES OR SCREEN WARPING

DISK $4/image <<<—>>> $20 minimum FILM

Mueller Visual Productions
4024 28th Ave. #2
Rock Island, IL 61201
1-800-255-2255 ext. 1586

MicroEd

Educational Software K thru ADULT

ALL CURRICULAR AREAS • INCLUDES RELIGIOUS PROGRAMS
SEND FOR A LIST OF OUR SOFTWARE

MicroEd, Incorporated
P.O. Box 24750
Edina, MN 55424
612-929-2242

BUSINESS SOFTWARE

Payroll
Accts Receivable
Check Ledger
Inventory
Accts Payable
General Ledger

FREE CATALOG call or write today!

(619) 436-3512

COMPUTERWARE®

Box 668-A Encinitas, CA 92024

MCP Associates, Inc. Featuring C. ITOH, SONY, Etc. **The DISK SPECIALISTS—DISTRIBUTORS**

3.5″, 100% Certified, Lifetime Warranty!

Bulk—C. ITOH	1DD SSDD—Blue	2DD DSDD—Blue	2DD DSDD—Rainbow
50	.99	1.25	1.35
100–350	.97	1.20	1.30

Prices subject to change without notice. For Sony, others, please write/call. Shipping/Handling: $6.00 min., plus $3.50 per 100 disks. N.Y. residents add Sales Tax. COD's add $5.00. American Express, MasterCard/Visa accepted: Min. purchase—$50.00. We ship worldwide—inquire about rates. Other brands, and quantity pricing available. Write/Call for AMIGA Product Listings. Educational, Corporate, Dealer inquiries invited.

MCP Associates, Inc., P.O. Box 6260, Dept AW, L.I.C., N.Y. 11106-0260
Tel: (718) 956-9000 Exceptional Service & Quality **Fax: (718) 956-9028**

Let Your Amiga Sing Out In Stereo **... Without Stealing the Voice from Your Monitor**



Dare to want it all! Enjoy stunning stereo sound from your Amiga without unplugging the audio to your monitor. Sound simple enough? Well the obvious solution is the *wrong* solution!

WHY Y's ARE NOT WISE

A standard Y-connector set-up will electronically mix signals throughout the circuit and disable channel separation. The correct solution is an auxiliary audio cable (#AA101) which feeds combined monaural sound to your monitor from the Amiga 1000's TV Mod jack; this frees the audio jacks to provide brilliant, uncompromised stereo. To order, send $14.95 (includes S&H) to:

(Amiga 1000 Only) **CORETECH P.O. Box 58023 Seattle, WA 98138**

MCP Associates, Inc. **New York's Premier AMIGA Specialists!**

Proudly announces **The GRAND OPENING** of its **RETAIL STORE.**

Featuring * AMIGA Computer Systems—for Business, Home, Education, Video, Arts & Film, etc: * Hardware, Software, Peripherals, & Disks.

GRAND OPENING SPECIALS on all AMIGA Systems, and Products.

* A500 Complete System, includes: A500, A501, A1084, Okidata 182+ printer, cables, disks, etc. $1,395.00
* A2000 Systems available also, specify your configuration.
* Many other specials will be in effect during this event.

Call/Write for Product and Special Listings. American Express/MasterCard/Visa accepted—min. purchase $50.00. Authorized AMIGA Dealer.

MCP Associates, Inc., 28-21 Astoria Boulevard, Dept AW, Astoria, N.Y. 11102-1933
Tel: (718) 956-9000 Exceptional Service & Quality **Fax: (718) 956-9028**

AMIGA PUBLIC DOMAIN—$5.95 PER DISK

☐#1 PRODUCTIVITY (W.B. & CLI Utilities)
☐#2 SOUND (Ed & mini library)
☐#3 SOUND LIBRARY 1 (Lots of sounds!)
☐#4 SOUND LIBRARY II (More sounds!!)
☐#5 BOARD & CARD GAMES I (Family Tested!)
☐#6 BOARD & CARD GAMES II (Hours of Fun!)
☐#7 GAMES I (Kid tested & approved!)
☐#8 SIGHT (Graphic Utilities & Progs)
☐#9 ALTICONS (Library, Ed., Utilities)
☐#10 MACPICS (View, Edit, Convert, Print)

$5.95 Cost Per Disk . . .
$ .30 Shipping Per Disk
(Wa. res. add 7.5% tax)
-We Accept-
All major credit cards

Check off selections
Send ad & $ + S&H to:
Colony Mountain PD
P.O. Box 22
Bow, Wa 98232-0022
or call: 206-766-6466

NO SCAN LINES! TOP QUALITY—*FAST*

SLIDES

NEW LOW PRICE!!

ANY IFF FILE PROCESSED DIRECTLY FROM YOUR DISK!
2k resolution 35mm slides $6.75 each and as low as $2.75 each. Also digital color separations. Now accepting Visa/MC, minimum order $25.00.
Call or write for our full service list:
ImageSet—555 19th St., San Francisco, CA 94107
(415) 626-8366

AMIGA DUST COVERS

*Satisfaction Guaranteed *Custom Made *Heavy 32oz Vinyl
*Colors TAN & BROWN *Quantity Discounts Available

(A) 500/1000/2000 MONITORS	$19.00	(F) EXT. 3.5 DRIVE	$ 8.00
(B) 1000/2000 CPU w/DRIVE	13.00	(G) EXT. 5.25 DRIVE	8.00
(C) 1000 KEYBOARD	7.00	(H) MOUSE COVER	4.00
(D) 500 KEYBOARD w/DRIVE	14.00	(I) 10″ PRINTER	13.00
(E) 2000 KEYBOARD	8.00	(J) 15″ PRINTER	16.00

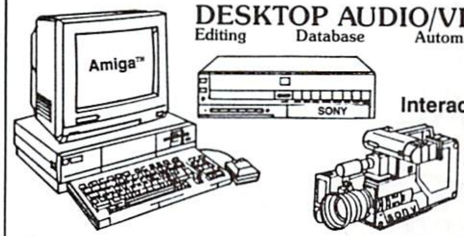
COMBINATIONS: (A) (B) $28.00; (A) (D) (H) $31.00; (A) (B) (E) (H) $34.00 (A) (B) (C) (F) (H) $39.00

Order By Stating Make, Model & Color (TAN or BROWN) with Check or M.O. Plus $1.50 per Item ($4.50 Max) SHP. & HDL; CA. Res. add 6% Tax. COD's $3.00.

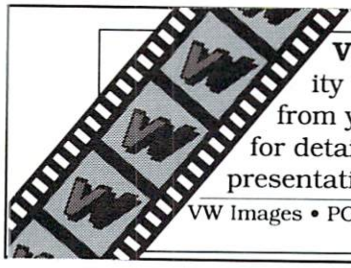
CROWN CUSTOM COVERS, 24621 Paige Circle, DEPT. A-2
Laguna Hills, CA. 92653 (714) 472-6362

DESKTOP AUDIO/VIDEO SYSTEMS

Editing Database Automatic Playback Training



Interactive MicroSystems, Inc.
Landmark, Suite 20
P.O. Box 1446
Haverhill, MA 01831 USA
617/372-0400



VW Images offers high quality slides and color hard-copy from your IFF files. Call or write for details. ALSO Utilities for slide presentations, and more!

VW Images • PO Box 15107•Clearwater, FL 34629
813/442-6576

AUG
AMIGA USER'S GROUP of SJ

Join the largest user's group dedicated to the AMIGA. Receive our official newsletter. Evaluations on software and hardware, advanced updatings, technical information, problem-solving, program exchange (over 50 disks in our PD library), Buying discount service, etc.

Send $18.00 US for Membership to:
AUG
Box 3761- Attn: Jay Forman-AW1
Cherry Hill, NJ 08034
(609) 667-2526 Add $1.00

VISA MasterCard



TAKE 5 AMIGA™ DISKS FOR ONLY $29.95*

EXCELLENT SOFTWARE! APDC COUPON BELOW FOR AMIGA 500, 1000 & 2000.

GRAPHICS and GAMES	APDC SPECIAL DISKS	UTILITY DISKS
☐001 Best Graphics & Games	☐002 Amiga Learner — Fantastic tutorial disk.	☐015 Icons & Icon Utilities
☐007 Mandelbrot & Fractals	☐005 Amiga Basic Programs — Excellent utilities and games.	☐017 Emacs Editors
☐008 Assorted Games — APDC's most popular disk!	☐011 Sounds — Edit and play sounds.	☐019 Unix™-type Commands
☐009 Graphics & Animations — Eye-popping Amiga demos!	☐018 General User Utilities — A must for the serious user.	☐021 Telecommunications — Best modem utilities + BBS list.
☐013 Interactive Graphics — Ray tracer, create 3D objects.	☐031 Amiga PD Artwork	☐023 Word Processing — Also Databasing and Spreadsheets.
☐014 Desktop Video		☐025 Programming Languages — Lisp, Forth, and Modula-2.

APDC ORDER COUPON

ENTER DISK NUMBERS DESIRED

BUY 10 TAKE ONE FREE!

Full Name ____
Street ____
City ____
State ____ Zip Code ____

SPECIAL OFFER
ANY 5 DISKS only $29.95*
ANY 10 DISKS only $59.90*
(SINGLE DISK PRICE: $7.00)*

*Add $4 ($7 foreign) shipping & handling. CA residents also add 7% sales tax.

SPECIAL OFFERS INCLUDE 10-SLOT DISK CASE!

Send coupon (or copy) with check or money order to:
Amiga Public Domain Connection
-OR- *APDC*
BOX 9015 BERKELEY CA 94709
Allow 3 to 5 weeks for delivery (APO OK).

35mm COLOR SLIDES

from your IFF or HAM files

- Brilliant Color
- No Curvature Distortion

as low as $1/slide

Call or Write for order form, price list & sample

HAMMOND PHOTOGRAPHIC SERVICES
11280 Washington Place
Culver City, Ca. 90230
(213) 390-3010

INTRODUCING . . . PROJECT "D"

- An easy to use, friendly & intuitive user interface.
- A powerful and fast backup tool that lets you make backups of your copy-protected Amiga software.
- A unique backup tool for duplicating other disk formats including MS-DOS/PC-DOS and Atari ST.
- This product is not copy-protected in any way.

NOW SHIPPING
$49.95 ea
Includes shipping and handling!
Arizona residents add 6.5% sales tax
Dealer Inquiries Invited
Amiga is a trademark of Commodore-Amiga Inc.

TO ORDER
Send check or money order to:
Fuller Computer Systems Inc.
P.O. Box 9222
Mesa, Arizona 85204-0430
OR CALL (602) 835-5018

RGB VIDEO CREATIONS

presents

DELUXEHELP FOR:
DELUXEPAINT • CALLIGRAPHER
DELUXE PAINT II • PHOTONPAINT
AND AMIGA DOS

RETAIL $34.95 + SHIPPING

Use the Ultimate Tutorial System

VISA — MasterCard

2574 PGA BLVD, SUITE 104, PALM BEACH GARDENS, FL 33410

305-622-0138 **305-622-7049 BBS**

WANTED: AMIGA DEALERS

THE SOFTWAREHOUSE offers a wide selection of Amiga software at competitive prices. As an authorized distributor of **COMMODORE AMIGA** brand software, we feature:

COMMODORE AMIGA

ASSEMBLER	GRAPHICRAFT
AMIGATERM	LISP
C COMPILER	MINDWALKER
CROSS-DEVELOPER	TEXTCRAFT PLUS
ENHANCER V.1.2	1680 MODEM

We require no minimums on any product line (including pre-bookings) and offer same-day service on most orders. We're easy to work with, so give us a call for your **COMMODORE AMIGA** and other software needs.

THE SOFTWARE HOUSE, Route 7, Box 409, Golden, CO 80403 303-642-3063

AMIGA SOFTWARE

Over 80 disks of only the best of the Public Domain and Shareware. Tested and sorted into the following categories: Animation, Applications, Games, Graphics, Information, Music, Programming, Sound, Telecommunications, and Utilities.

For a free list, send a business size SASE to:

Micro Computer Associates, Amiga Software, P.O. Box 5533, Katy, TX 77491-5533.

MOUSE WASH! A SPECIALLY DESIGNED BALL THAT CLEANS YOUR MOUSE ROLLERS–$7.95 **MOUSE WASH 2500 FOR AMIGA 500 AND 2000–$7.95** *WINDOW PRINT II*–LOAD, SAVE, PRINT OR CLIP PART OF A SCREEN, CONVERT BRUSHES TO ICONS, POSTER SIZE PRINTER AND MUCH MORE! FOR THE 500, 1000 & 2000, WORKS WITH IBM GRAPHICS ON THE AMIGA–$34.95***LIBYANS IN SPACE*–A SUPER FAST SPACE WAR GAME WITH GREAT DIGITIZED SOUND EFFECTS!–$29.95** *RAT PAD!* A BIG 10″ × 12″ MOUSE PAD—$11.95

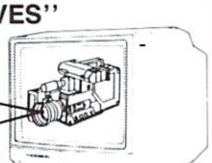
ADD $2 FOR SHIPPING OR $3 FOR C.O.D.

T & L PRODUCTS
2645 Wilson St.
Carlsbad, Ca. 92008
(619) 729-4020

"IN HOME REPRESENTATIVES"

VHS (2 Hr) **$29.95** EACH COD

TUTORIALS



DELUXE PAINT II
SHAKESPEARE
PAGESETTER

THE NEW IMAGE
4875 TAMIAMI TRAIL
CHARLOTTE HARBOR, FLA 33980
(VIDEO DEPT) 1-(813)-625-9001

OMNI INTERNATIONAL TRADING

The AMIGA Specialists

AMIGA Software
AMIGA Peripherals
AMIGA Computers

WE SHIP AROUND THE WORLD

Known internationally for exceptional service.
Knowledgeable, multi-lingual staff.
U.S. overseas personnel!
We specialize in APO & FPO shipping!
Ask for our Overseas Military Special Pricing!
Fast delivery, charged when shipped
AX, Discover, VISA, MC, M/O, Certified check
Authorized AMIGA Dealer

3826 Woodland Park Ave. N., Seattle, WA 98103 — 206-547-OMNI — 206-547-6664 — Fax 206-547-6012

LARGEST ENCYCLOPEDIA/CATALOG FOR DEDICATED COMPUTERS AND GAME UNITS



DIABLO—Graphic mind challenge game. $29.95
Lottery Assistant—Increase your odds of winning as much as 500% $39.95
Strip Poker—Digitized nudes not drawing. $29.95

FAST SERVICE • BIG DISCOUNTS
MANY EXCLUSIVE PRODUCTS

S&H—$2.50 US
S&H—$4.50 CN
US—$'s ONLY

M.W. Ruth Co. AMW1
3100 W. Chapel Ave.
Cherry Hill, NJ 08002
(609) 667-2526

If you have developed software or hardware we would be happy to sell it for you. We also Market, Publish and Manufacture.

This is Your Amiga's External Disk Drive.

Introducing The Master 3A 3.5" Disk Drive for the Amiga.



Only $189

- Fully 1010 Compatible
- Smaller & Slimmer than the 1010
- 28" Cable
- Daisy Chainable
- High-Tech Gloss Black Face Plate
- Quieter Operation

SCI Surfside Components International
P.O. Box 1836
Capitola, CA 95010
Dealer Inquiries Welcome

Call Toll Free
800-548-9669
In Calif: (408)462-9494

AmigaWorld is a publication of IDG Communications, the world's largest publisher of computer-related information. IDG Communications publishes over 90 computer publications in 33 countries. Fourteen million people read one or more IDG Communications publications each month. IDG Communications publications contribute to the IDG News Service offering the latest on domestic and international computer news. IDG Communications publications include: ARGENTINA'S *Computerworld Argentina*; ASIA'S *Communications World, Computerworld Hong Kong, Computerworld Malaysia, Computerworld Singapore, Computerworld Southeast Asia, PC Review;* AUSTRALIA'S *Computerworld Australia, Communications World, Australian PC World, Australian Macworld*; AUSTRIA'S *Computerwelt Oesterreich*; BRAZIL'S *DataNews, PC Mundo, Micro Mundo*; CANADA'S *Computer Data;* CHILE'S *Informatica, Computacion Personal*; DENMARK'S *Computerworld Danmark, PC World Danmark*; FINLAND'S *Mikro, Tietoviikko*; FRANCE'S *Le Monde Informatique, Distributique, InfoPC, Telecoms International;* GREECE'S *Micro and Computer Age*; HUNGARY'S *Computerworld SZT, PC Mikrovilage*; INDIA'S *Dataquest*; ISRAEL'S *People & Computers Weekly, People & Computers Bi-Weekly*; ITALY'S *Computerworld Italia*; JAPAN'S *Computerworld Japan*; MEXICO'S *Computerworld Mexico*; THE NETHERLANDS' *Computerworld Netherlands, PC World Benelux*; NEW ZEALAND'S *Computerworld New Zealand*; NORWAY'S *Computerworld Norge, PC World Norge*; PEOPLE'S REPUBLIC OF CHINA'S *China Computerworld, China Computerworld Monthly*; SAUDI ARABIA'S *Arabian Computer News*; SOUTH KOREA'S *Computerworld Korea, PC World Korea*; SPAIN'S *CIMWORLD, Computerworld Espana, Commodore World, PC World Espana, Comunicaciones World, Informatica Industrial*; SWEDEN'S *Computer Sweden, Mikrodatorn, Svenska PC World*; SWITZERLAND'S *Computerworld Schweiz*; UNITED KINGDOM'S *Computer News, DEC Today, ICL Today, LOTUS, PC Business World*; UNITED STATES' *AmigaWorld, CD-ROM Review, CIO, Computer Currents, Computerworld, Computers in Science, Digital News, Federal Computer Week, 80 Micro, FOCUS Publications, inCider, InfoWorld, Macintosh Today, MacWorld, Computer + Software News, (Micro Marketworld/Lebhar-Friedman), Network World, PC World, Portable Computer Review, Publish!, PC Resource, RUN, Windows*; VENEZUELA'S *Computerworld Venezuela*; WEST GERMANY'S *Computerwoche, Information Management, PC Welt, Run, PC Woche, RUN.*

Manuscripts: Contributions in the form of manuscripts with drawings and/or photographs are welcome and will be considered for possible publication. *AmigaWorld* assumes no responsibility for loss or damage to any material. Please enclose a self-addressed, stamped envelope with each submission. Payment for the use of any unsolicited material will be made upon publication. All contributions and editorial correspondence (typed and double-spaced, please) should be directed to *AmigaWorld* Editorial Offices, 80 Elm Street, Peterborough, NH 03458; telephone: 603-924-9471. **Advertising Inquiries** should be directed to Advertising Offices, IDG Communications/Peterborough, Inc., 80 Elm Street, Peterborough, NH 03458; telephone: 800-441-4403. **Subscription problems or address changes:** Call 1-800-227-5782 or write to *AmigaWorld*, Subscription Department, PO Box 868, Farmingdale, NY 11737. **Problems with advertisers:** Send a description of the problem and your current address to: *AmigaWorld*, 80 Elm Street, Peterborough, NH 03458, ATTN.: Lisa LaFleur, Customer Service Representative.

List of Advertisers

* This advertiser prefers to be contacted directly

This index is provided as an additional service. The publisher does not assume liability for errors or omissions.

FYI

As a service to its readers, *AmigaWorld* will periodically publish the names of companies who are having difficulties meeting their customer obligations or who have gone out of business. Readers are advised to contact *AmigaWorld* before dealing with these companies: **Computer Best**. If you have any questions or concerns about advertisers in *AmigaWorld*, please contact: **Lisa LaFleur, Customer Service Representative, *AmigaWorld* Magazine, 80 Elm Street, Peterborough, NH 03458; 603-924-9471**. Through our customer service representative, *AmigaWorld* assists readers with problems they may have with advertisers. However, *AmigaWorld* does not assume any liability for advertisers' claims.